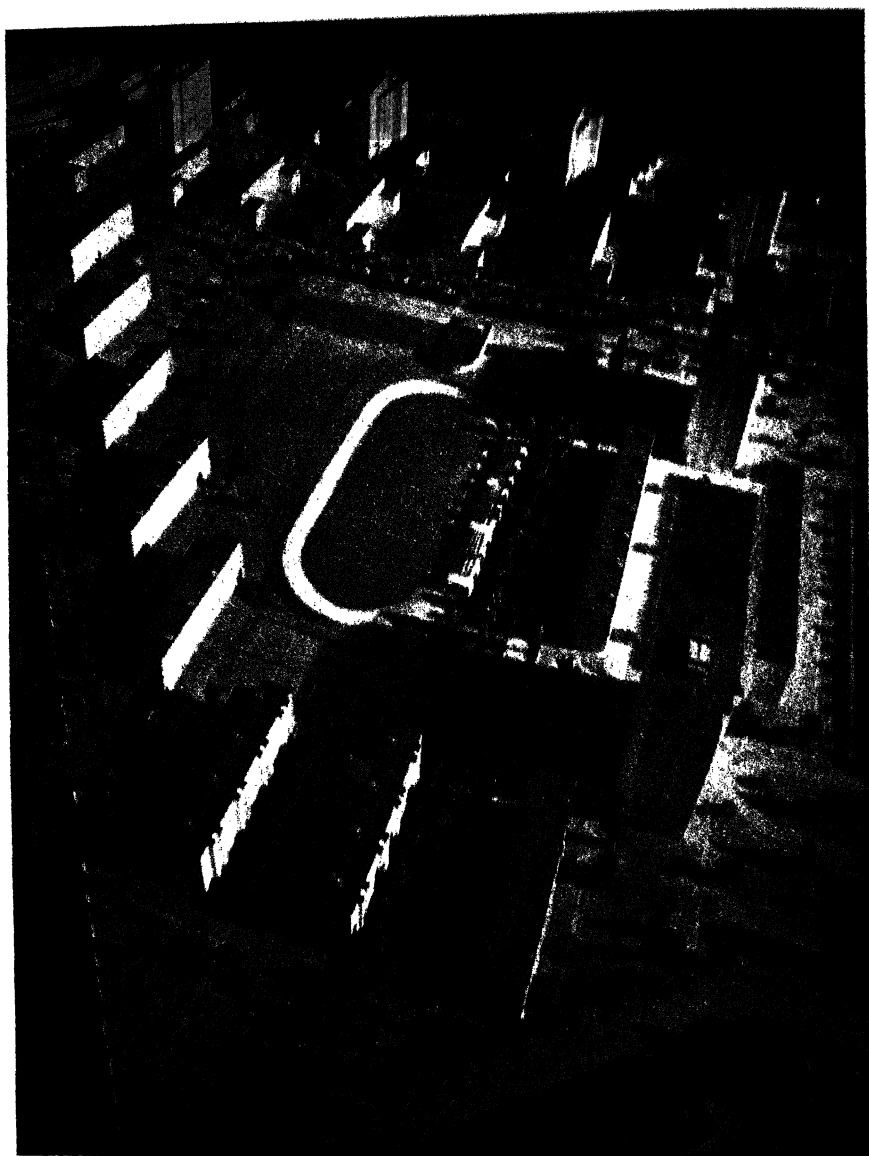


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*Edward James Mathews, Architect*

*Photo by Richard Garrison*

## STUDY OF AN 80-ACRE MULTI-FAMILY NEIGHBORHOOD UNIT

*Model by WPA Federal Art Project*

Amenity and open space gained through re-design of streets and blocks. See pages 63 and 122

(Plate 13)



# HOUSING FOR THE MACHINE AGE

BY

CLARENCE ARTHUR PERRY

AUTHOR OF WIDER USE OF THE SCHOOL  
PLANT, THE WORK OF THE LITTLE THEATRES,  
AND THE REBUILDING OF BLIGHTED AREAS



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*Nothing will ever be attempted if all possible objections must first be overcome.*

—DR. SAMUEL JOHNSON

*Every noble work is at first impossible.*

—CARLYLE

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## PREFATORY NOTE

**W**HEN Mr. Perry set out upon the task of preparing this volume, he expected only to round out his earlier presentation of the neighborhood unit idea with a method for making its actual application more generally practicable. The procedures suggested for this purpose, when fully worked out, showed, however, an additional usefulness. Without anticipating his argument, it can be said that these procedures seem to offer important aids toward a solution of the problem involved in the application of modern industrial technology to the production of dwellings. The present obstacles in such production, it appears, are not so much physical and economic as social and political.

If Mr. Perry's conclusions are valid, and the present obstacles could be overcome, the result would have a significance far wider than the large-scale construction of finer and less expensive homes, important as that is. The industrial activity thus created and indirectly stimulated in other lines would produce a notable increase of employment, offer opportunity for a large investment of private funds in capital goods, contribute substantially toward a return to more prosperous times, and add considerably to the national morale.

The neighborhood unit—"a scheme of arrangement for the family-life community"—was first described in one of the three monographs that made up volume 7, *Neighborhood and Community Planning*, of the *Regional Survey of New York and Its Environs*.<sup>1</sup> The regional survey covered the entire area within a radius of 50 miles from New York City, and included an investigation of this huge territory from the standpoints of industry, population, highways, transportation, public recreation, and building and public services, as well as of neighborhood planning. The findings were published in eight volumes, and the recommendations based upon them were set forth in two additional volumes, entitled *The Regional Plan of New York and Its Environs*. The

<sup>1</sup> For full imprint see p. 51 of the present volume.

## HOUSING FOR THE MACHINE AGE

enterprise, begun in 1921, by the Russell Sage Foundation and maintained by it, required seven years to accomplish.

In 1933 a supplemental study of the neighborhood unit idea as applied to a particular field of housing was undertaken by Mr. Perry. It was presented in a volume entitled *The Rebuilding of Blighted Areas*, and was issued by the Regional Plan Association, a body formed to carry out the purpose of the New York Regional Plan. In this monograph Mr. Perry, in addition to discussing the subject of rehabilitation, offered an outline of procedure for assembling the large plot required for construction of a neighborhood unit. The proposed procedure was, however, found to be defective from a legal standpoint and impracticable in application.

Housing schemes limited to plots the size of an elementary school district—from 160 down to 30 acres, according to density of population—are manifestly confronted by insuperable obstacles under existing conditions of land subdivision. And yet the prevalence of blighted areas in our cities shows an acute need for neighborhood planning and reconstruction.

Believing that a scheme promising fundamental benefits to the public could somehow be placed within its reach, Mr. Perry continued his search for an implementing legal procedure. The results of this search are set forth in the pages that follow. Volume 7 of the *Regional Plan Survey* is now out of print; and since its technical character had limited its usefulness to a special group of readers, that portion of it dealing with the neighborhood unit formula has been simplified and is discussed again in Chapter III of the present publication. With permission of the publishers the leading plans shown in the volume, *The Rebuilding of Blighted Areas*, which have proved to be practicable, have also been included. Thus the chapters herein contain a complete account of Mr. Perry's proposals and discussion relative to the neighborhood unit idea.

A word of caution should be offered to readers living outside New York City. Many illustrations and much description of districts in the following pages relate to the Atlantic metropolis. This is due chiefly to the accident of the author's being a resident of that city and to the greater accessibility of the New York material. Every other city in the country may, however, be considered a smaller New York, having in varying proportions the same kinds of

## PREFATORY NOTE

troubles. If a city is large enough to have elementary school districts, the neighborhood unit idea contains suggestions regarding the moulding of its residential areas.

Another point to guard against is that of inferring from the many illustrations of apartment houses inserted in the present volume that the author makes a special plea for the multi-family house. This type of dwelling seems to be required in the rebuilding of central "downtown" slum areas; and since the method of rehabilitating these areas is the subject of much controversy, many illustrations are offered in an attempt to set forth the question adequately. The planning of a single-family neighborhood is much better understood, and is therefore less in need of illustration. The matter of securing sites large enough to allow of comprehensive planning is, however, of great and widespread importance.

Mr. Perry came to the Russell Sage Foundation in May, 1909. In October, 1913, he became associate director of its Department of Recreation, and retired September 30, 1937. During this long period one of Mr. Perry's major professional activities was the study of community centers, and the problem of finding the setting, or physical frame, within which local community life could, despite the hostility of modern urban conditions, naturally develop.

Most of the details of Mr. Perry's concept of the neighborhood unit were supplied by the experience of his living in Forest Hills Gardens, a large residential development in the Borough of Queens, New York City, planned by the Russell Sage Foundation in 1910.

It will thus be seen that in the present publication several of the Foundation's important undertakings continue to bear fruit.

Grateful acknowledgment is made to the Regional Plan Association for permission to use textual matter and illustrations from *The Rebuilding of Blighted Areas*. Other acknowledgements to persons and organizations are given in the text. To mention here all to whom Mr. Perry feels himself indebted would call for a list too long to include in these pages.

SHELBY M. HARRISON, *General Director,*  
*Russell Sage Foundation*

## I. TOWARD A MORE COMPREHENSIVE HOUSING POLICY

A PROMINENT New York real estate man recently expressed the opinion that the "normal life expectancy" of an ordinary dwelling was two or three times that of its neighborhood. In other words, the quality or desirability of a particular district tends to decline long before its component houses begin to wear out. Even so, this observation acquires a general significance only if it is discovered that the neighborhood deterioration affects the value of its individual houses. When the owner of a dwelling finds he can keep it occupied only by progressively lowering its rent, then its actual value is declining and the matter is of importance to the public, since that property is no longer able to bear its original share of the tax burden.

If this view is correct then the unsatisfactory conditions that lead families to give up their domiciles and move to new quarters become of private and public concern. If the dissatisfaction has arisen from something in the environment, it should be of special interest to the community because the matter is then beyond the power of the individual to correct and must receive attention from the public. That neighborhood conditions do cause people to move is a common view, but there is no unanimity as to just what these conditions are.

In this discussion, neighborhood and environment are used synonymously, and they always refer to the surroundings of a dwelling or dwellings. These terms call up vivid images, but if we could photograph and project upon a screen the pictures they evoke in the minds of readers, we would undoubtedly be amazed at the differences revealed. If, however, the message of this book is to be accurately conveyed, it is necessary that the author's references to the neighborhood elicit images similar to those about which he is writing. To that end he has attempted to draw the picture of a family of small means which largely makes up the body of our

## HOUSING FOR THE MACHINE AGE

citizenry, living in a setting that contains many of the main aspects of city neighborhoods as dealt with in this volume.

### A STRUGGLE WITH CITY ENVIRONMENT

When the Scroggins family, consisting of father, mother, and two small children, moved into their new house in the recently built-up section of a growing city, the parents satisfied an ambition that had stimulated their exertions since their wedding day. The frame house was modest, but it had a deep back yard that filled their thoughts and engaged their spare time, especially in the after-supper hours. Between the house and the garage was a bit of green earth, with which they could do precisely as they pleased.

They worked together. Scroggins got some flagstones and laid two tracks from the garage to the street. The bed of this driveway, as well as a central space directly behind the house, he seeded with lawn grass. Next he planted a miniature truck garden of radishes, lettuce, and onions. Around the edges Mrs. Scroggins set out rose bushes, and in the long summer evenings they sat on the "lawn" and planned additions to the plants and shrubbery while they watched their children dig in the improvised sand pile.

The plot on their right was vacant. Receiving no attention it was soon covered with tall weeds and littered with tin cans and other debris of city life. Mrs. Scroggins longed for the day when someone would build upon it and give her neighbors, with whom she could talk and exchange ideas about planting and play equipment.

Presently a house was begun. A garage was built, but it extended the entire width of the lot, shedlike, and shortly housed a couple of trucks. The space intended for a grass plot was soon filled with wheelbarrows and other equipment of a young contractor. The Scrogginses had painted their house in modest colors, a nice ivory for the body and green for the blinds. Mrs. Contractor, however, chose chrome green with vermillion red shutters.

As the children grew Mrs. Scroggins became concerned about their playmates. The contractor's children were right at hand, and since the constant movement of vehicles in his yard made it dangerous for them to play there, they became the inescapable playmates of the Scrogginses, an accession that added to the noise and subtracted from the tranquillity of their life.

## A MORE COMPREHENSIVE HOUSING POLICY

To the left of the Scroggins dwelling were two fifty-foot lots. One morning Mrs. Scroggins saw a steam shovel working on that site, and a few months later an apartment house covered all but three-tenths of the plot and shot up in the air over 60 feet. On land only twice the area of the Scroggins lot, the apartment house owner loaded 30 families and left no place in which his tenants' children could play. Naturally they gravitated toward the Scroggins' yard. In their vigorous, unorganized play they began to trample the shrubbery and to break windows. The older boys bullied the smaller children and the situation became intolerable. The enjoyment of their little kingdom was gone for the Scrogginses. They could not sit on their lawn without consciousness of the eyes peering down from the overlooking windows or of the sounds issuing from raucous radios.

When the Scroggins' little girl was ready for school, they found to their distress that the nearest public school was three-quarters of a mile away, and that two main thoroughfares had to be crossed to reach it. To send her to school alone was terrifying, so they kept her at home a whole term after she was of school age.

The grocery store which the Scrogginses patronized was also some distance away. Finally this want was filled. The contractor next door was not doing very well and soon carpenters appeared and added a store-front to his house. The bulk of the first floor was quickly filled with shelves and counters, on which were packages of foodstuffs, a sign went up over the new front door, and the cement driveway echoed all day long with the passage of delivery trucks.

One afternoon Mr. and Mrs. Scroggins stood across the street and looked over at their home. There it was just as they had bought it, a shelter and a perfectly satisfactory "machine for living." Yet, as they gazed at the huge building that overtowered them on one side and on the other the collection of vegetables and packing crates, the litter of decaying refuse on the sidewalk to be disposed of, the stream of customers, and the noise and activity of motor cars and trucks, their hearts sank within them. As a habitation for happy living their home was ruined, and they began to think about moving away.

Thus it is plain that the family occupying a city dwelling is

## HOUSING FOR THE MACHINE AGE

vitaly affected by the appearance and uses of adjacent structures; by the location of the public school, retail stores, and playgrounds; and by the traffic conditions encountered in making use of these facilities and services. Through zoning and other measures most municipalities are doing something to control environmental troubles such as those encountered by the Scroggins family. The fact is, however, that as yet their methods are not adequate for the purpose. In particular, there are two shortcomings in residential environment which still grievously afflict families living in city apartment houses, namely, lack of play space and of the conditions that create neighborliness.

### DWELLINGS WITHOUT YARDS

When a builder loads a single plot with so many families that their children are forced to obtain their play opportunities and character development from the street, from the yards of neighbors, or from the public playground—then his conduct is not unlike that of the cuckoo which lays eggs in other birds' nests, for strangers to hatch. Probably he, like the bird, follows his instincts and therefore we should not blame him too severely. But even the apartment builder, completely governed by his instincts, would no doubt be amazed if he realized the injury his product had wrought—and was still working—upon human development.

If you asked him where the children of his apartment families could play, he would undoubtedly point to the public parks and playgrounds. You would have to admit that indeed most municipalities have set aside large spaces for recreation and have trained men and women to conduct wholesome games and sports upon them. But we should not let that circumstance blind us to the fact that the public recreation movement—extensive and progressive as it is—has not as yet been able to fill the breach in the environment of child-life that was made when homes were shorn of yards by the institution of multi-family dwellings.

While it is true that the extent of public play space varies in different localities, it is still, even in the most progressive municipalities, patently insufficient in two respects: (1) Many apartment families are more than a quarter of a mile from a playground (experience shows that few children will travel farther). (2) Children



## A MORE COMPREHENSIVE HOUSING POLICY

of the pre-school age, who cannot go alone to a playground, are served only in a very limited degree by existing public facilities.

To appreciate what the apartment child has lost we have only to recall what the children in a single-family dwelling still enjoy. Take the most common type of home yard—that with a small grass plot and a garden space. In digging, climbing, teetering, and throwing at targets children develop strength and muscular co-ordination. In building slides and bird and chicken houses they gain manual skill and whet the constructive impulse. In caring for dogs, rabbits, and other pets they exercise their parental impulses and learn the value of kindness. In team games, involving the neighbors' children, they begin to practice fairness and to place the interests of the team before those of the individual. And all of this activity, which is so instrumental in the development of the child's various capacities and behavior patterns, is self-driven and carried on with joyous satisfaction.

Moreover, one of the important aspects of home-yard play is that it is carried on under parental oversight. If a child's baseball goes through a neighbor's window, his mother leads him to face the owner while she pays for the damage. The emotions the boy experiences are more wholesome and more promising for his future than would have been occasioned had the property damage happened away from his home and resulted in an exciting chase in which he filled in the eyes of his comrades the role of a "wild west" outlaw. The thrills of anti-social acts have an extraordinary efficacy in moulding behavior patterns, in creating an appetite for the forbidden.

Students of crime have often speculated on why it is that large cities, with elaborate park and playground systems, still show a high delinquency rate. Some of it may be due to the wide unprotected gulf which lies between the apartment home and the play field. When the youngster tells his mother he is going to the public playground, how can she be certain that he actually reaches it? He may play there on some occasions and on others meet his gang in their hideouts. To watch the doings of her offspring and prevent their taking the wrong form is an arduous task for the tenement mother.

When one reads the current crime statistics, it is difficult to convince oneself that the public playground system has, in any high

## HOUSING FOR THE MACHINE AGE

degree, compensated the city boy for the loss of the traditional playground—his own yard.

### URBAN ISOLATION

There is another kind of defect in city life that is also due mainly to the multi-family dwelling. Urbanites may live close together physically and yet be miles apart socially. A striking instance was related to the writer some years ago by the late George B. Ford, eminent architect and city planner. Lunching one day at the Harvard Club, he fell into conversation with the man seated next to him at the "general" table. Ford had an enjoyable chat with his table neighbor and at the door they bade each other goodbye with the fervor of old friends, but immediately discovered that they were going in the same direction. Three times they started to part, only to find they were continuing the same way. Finally they entered the same apartment house, on different floors of which they had dwelt for a year and a half!

It is true that families living in the same apartment house do often become acquainted, although a large number actually do not. In the main we associate with those people who have ways like our own. If we put our waste paper in a bag, tie string around its neck, and carefully place it out where the garbage collectors can get it, we are likely to feel suspicious of the housekeeper who puts her papers out in an open basket, leaving them to become the sport of idle winds. What people are like can easily in village districts be determined by the neighbors. The day and hour when the new family puts out its wash, how often the postman calls, what time the husband goes to work, how often a fire is built in the front room, who the callers are, the children's actions while at play, the way they are dressed for school, the hour the family retires, the hour it gets up—these will all be known in a single-family district.

Contrast that situation with the one that obtains in the ordinary apartment house. Here residents come and go for months without even seeing the people who live under the same roof. If the solitary dweller is held in bed by illness there is no signal—such as absence of the smoke that usually issues from the chimney, to apprise neighbors and bring their willing aid. The very congestion of family compartments, their lack of a distinctive and personal at-

## A MORE COMPREHENSIVE HOUSING POLICY

mosphere, their anonymity—all these conditions are hostile to the neighborly life.

### DECLINE IN URBAN PROPERTY VALUES

When tenants stay only a short time in a dwelling its income begins to shrink and its value as property to decline. Diminishing values in a residential district are evidence of incipient blight and a matter of serious concern to all taxpayers.

It is a significant fact that families in large numbers are abandoning the central portions of our large cities, and this movement is having heavy consequences. Let us examine some evidence on this point. The Citizens Budget Commission, Inc., of New York City recently declared:<sup>1</sup>

A short walk from almost any starting point in the city will take one into a blighted area of steadily declining property values. The signs are unmistakable: shabby, ill-kept buildings, buildings boarded up or abandoned, torn down buildings.

Close to the great centers of employment and within easy walking distance from them are some of the worst living facilities in the world. The conditions are so bad that they have ruined great areas adjacent to some of the most valuable land in the city.

The general attitude toward these decaying sections, the statement points out, leads to further complications.

Our people avoid them if they can. They go to the outer sections of the city or beyond its limits to secure a mite of living comfort [which, being translated, generally means a house with a piece of ground around it—Author], and we build and plan to build highways, tunnels and bridges to make it easier for them to avoid the conditions which should not have been created and which can and should be corrected. Meanwhile, the schools, sewers, highways, police and fire facilities remain in the deteriorating area and must be maintained. In the outer sections additional schools and sewers must be built, streets paved and police and fire facilities afforded at a cost out of all proportion to the growth of the entire city population.

To convey these suburbanites to and from work, New York has to support an extensive transit system. It comes about thus that many persons spend a third of their leisure time in uncomfortable

<sup>1</sup> New York Times, June 6, 1937.

## HOUSING FOR THE MACHINE AGE

travel while the municipality (that is, the taxpayers) sustains annually a large rapid-transit deficit. Some people try to find consolation in the thought that these losses are offset by the gains in real estate values in outlying sections. But that comfort, the Commission points out, is illusory. Those gains are outweighed by the destructive depreciation of more valuable and useful real estate at the center together with the rapid-transit deficit. "It is time we realize," says the Commission, "that the development of the city's outskirts should chiefly represent growth of population and not a forced and wasteful shift of population. We have paid and are paying a prodigious price for our past and present folly. We may appear to be having our golden eggs. But we are killing the goose that lays them."

A similar condition has been found in Saint Louis by its City Plan Commission. In its brochure on Urban Land Policy (1936) the foreword states:

The City of Saint Louis consists of sixty-two and a half square miles of land, most of which has now been improved with buildings, streets, parks and other urban improvements. New growth now finds accommodation mostly outside the city limits. Population is moving out of the city. Land values have declined markedly in the central areas of the old city. Buildings are being demolished to save taxes and little or no replacement occurs. To state the condition in its simplest terms—if adequate measures are not taken the city is faced with gradual economic and social collapse. The older central areas of the city are being abandoned and this insidious trend will continue until the entire city is engulfed.

An examination of conditions in other large cities would reveal, in most cases, a similar state of affairs. In most of them business men could point to tremendous losses in real estate values due to such centrifugal movements of population.

### THE HUMAN CONSEQUENCES

Is there any evidence that defects in city environment have affected the welfare of its residents? A person well equipped to answer this question is William F. Ogburn, director of the country-wide investigation of social trends. In *You and Machines*, he says:

The city has done things to us. More crimes are committed in the city than in the country. Not so many people get married. Families have

## A MORE COMPREHENSIVE HOUSING POLICY

fewer children. More women are employed outside the home. Suicides are more frequent in cities. City people are more nervous and more of them go insane. There is more wealth in the cities, more conveniences. We don't know many of our neighbors in the cities. There is not so much gossip. There is more music, more books, more education. All these differences between city and country life, the machine has caused.<sup>1</sup>

Crimes, insanity, suicides! Have you ever gazed on a picture more grim? And within the same frame, more music, more books, more education! What supreme irony!

Ogburn says that this state of affairs is due to the machine. Undoubtedly it is, but the statement needs explaining. Just standing by a motor-driven lathe all day would not ordinarily lead to murder. But the use of machines in industry leads workers to live crowded around the factory. It is a main cause for the piling up of populations in a congested city. The modern apartment house is the answer to the swollen demand for shelter near one's work.

When we look for the immediate cause of the conditions which Professor Ogburn enumerates, there is perhaps no more plausible one than the kind of home environment which we find in the large city. For thousands of youngsters the most exciting play opportunity which it provides is that of being chased by the "cop," a circumstance that certainly has a relationship to crime. The multi-family way of life has reduced the opportunities for vigorous games, for wholesome companionship, for securing neighborly help and advice. Does this fact help to explain the city's insanity and suicides? When the need of people is for warm personal sympathy, just how much consolation can they find in a rich supply of books and education?

The truth is that the natural nest of the human family is not merely six solid walls, but this box plus a surrounding medium through which sunshine and air can penetrate and in which social activities of vital import to its members can be carried on. When we consider how ruthlessly the city has disrupted the family nest, it is easy to understand the misery peculiar to present urban living.

In our search for a sound basis upon which to erect a national housing policy, we have now discovered a promising lead. To cure the present housing evils it is necessary to provide not only new

<sup>1</sup> You and Machines. University of Chicago Press, Chicago, 1934, p. 33.

## HOUSING FOR THE MACHINE AGE

dwellings but new dwellings set in the environment that is required for the proper development of family life. The essential constituents of that environment and how they should be arranged are a fundamental concern of a national housing program.

There would be little good, however, in producing vast numbers of houses and home environments unless there was assurance that they could be rented or sold. A report issued by the National Resources Committee on September 4, 1938, states that one-half of the families in the United States had incomes for 1935-1936 of less than \$1,070. One-fifth of that sum—which is the conventional allotment for shelter in family budgets—will not provide the carrying charges for very much of a house in these days.

Manifestly, one of our first needs is a way of reducing the cost of house construction. A means to that end will be discussed in the next chapter.

## II. CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

**M**ODERN industry has put motor cars, radio sets, and refrigerators within reach of a majority of American families, but it has done little to reduce the cost of dwellings. Constructing a house is still, in the main, an expensive handmade job. Since it cannot be put together on an assembly line and a part of it—the earth upon which it rests—cannot be carted around, there is a general belief that it is not susceptible to the production methods that have reduced the costs of automobiles and other appliances of modern usage.

Is this view well founded? Is there something in the essential nature of a dwelling that resists modern technology, or are there conditions in the field of house construction which have kept it from having a fair trial? In an attempt to find answers to these questions, let us make a quick categorical survey of the more important differences in the current methods of producing motor cars and dwellings.

### WHY THE AUTOMOBILE IS SO ADVANCED

The most significant fact comes to attention at once. All but a small percentage of the total output of automobiles comes from the factories of five or six gigantic corporations. That means that each manufacturer produces many thousands of cars annually. As a result the motor industry is able to avail itself of the following advantages:

1. Each manufacturer is able to maintain an expert research staff and employ skilled specialists in designing and engineering since it can spread the cost of this overhead over a vast output. This staff works continuously at the task of devising new and more efficient parts and models. Because of its permanency, each staff can gather up and make use of past experience in its efforts to improve the quality and efficiency of new engines and car bodies.

## HOUSING FOR THE MACHINE AGE

It does not have to start at "scratch" each year with an utterly new problem.

2. Each organization is able to divide the production process into many simple operations, which are performed by machines or trained crews quickly and at a low unit cost. A chassis goes on the assembly line naked and comes off at the other end completely clothed and alive with its own power. Parts or accessories which cannot be made in the local plant are purchased elsewhere in large quantities, at advantageous prices.

3. Since each manufacturer does the whole job, from designing to marketing the product, it is possible to co-ordinate all the various production departments and secure from each the highest efficiency and teamwork. Not only the men on the assembly line but all other crews and staffs have to keep in step.

4. Since each organization runs its own distribution system, it remains in direct contact with the consumer and can react quickly to the whims and demands of buyers. The situation makes it alert to suggestions for changes in performance and style.

5. The costs of financing production are reduced by being spread over a large output.

6. Finally, concentration of automobile production in the hands of a small number of organizations has tended to localize and intensify sensitivity to competition on the part of manufacturers. Natural commercial practice has brought about a sharing with the consumer of the economies arising from large-scale production.

## WHY HOUSING IS SO BACKWARD

Having summarized some of the chief features of automobile construction, let us now look at the current methods of producing dwellings.<sup>1</sup> Immediately we are confronted with a most significant

<sup>1</sup> For much of the information presented in this discussion of construction methods the writer is indebted to the following articles: "The Industrial Organization of Housing: Its Methods and Costs," by A. C. Shire, in *Current Developments in Housing*, The Annals of the American Academy of Political and Social Science (Philadelphia), vol. 190, March, 1937, p. 37 *et seq.*; and, "Facing the Facts on Housing—A Problem with No Easy Answer," *Harper's Magazine*, no. 1042, March, 1937, p. 421 (Anonymous). A reprint of this article has been distributed by the National Housing Committee which contains this note: "Since publication, it has been learned that the authors are Miles Colean and Guy Greer." This contribution sets forth in an interesting and thorough manner the many intricate factors in the housing problem.



## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

statement regarding organization—or rather, lack of it—in the building industry. It is taken from "Facing the Facts on Housing":

The intensely local and retail character of building operations is revealed by the Census of Construction of 1929. This survey indicated that the dominant factor in the industry was a group of over 113,000 small contractors, whose average annual volume of business was a little less than \$9,000. Compared with these multitudinous small enterprisers, the 750 operative builders listed, with their average volume of \$205,000, seem like big business. But in total volume their output was but little more than one-seventh that of the aggregate of the lesser builders, and their comparatively large-scale operations represented an average of not more than 50 houses a year.

Thus we see that a large part of the building in the United States is distributed among over 113,000 small contractors whose annual volume of business averages about \$9,000. But that statement does not reveal the minuteness of operations within this major class. The simplest form of organization, found mainly in villages and other small places, is represented by the carpenter or brick mason who has laid up a little capital and with some helpers builds houses for individual lot owners. He uses a set of stock plans, works by the side of his own men, and he and his crew perform practically all parts of the building. If there is some special phase they cannot do, the builder calls in a craftsman of his acquaintance, who works for him by the day and the boss buys the supplies he needs.

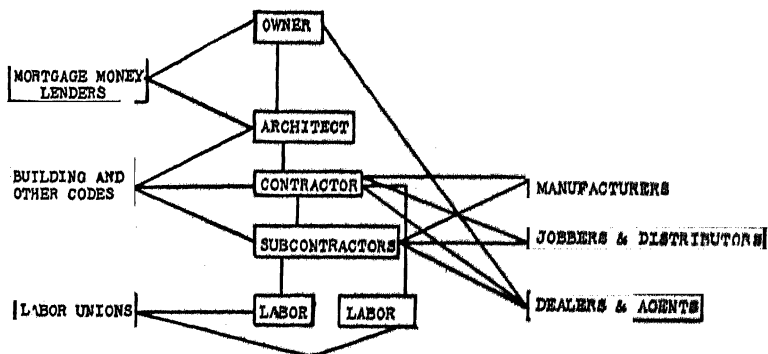
As business grows the boss carpenter does less manual work himself and turns more and more of it over to subcontractors. The various steps in the more advanced form of contractor building in the single-family field are approximately as follows:

A man buys a lot. His next steps may vary in the order in which they are taken, but ordinarily he hires an architect to make him a set of plans. With a rough idea of the cost he approaches a bank about a loan. It investigates him and the practicability of his project; the cost of which is included in the amount of his loan. With his plans in hand he goes to a builder, who, however, is usually called a "general contractor." In his earlier days this man used to buy materials and boss his own workmen, but now he finds it more profitable to spend the main part of his time in estimating,

## HOUSING FOR THE MACHINE AGE

dealing out jobs to special subcontractors, and overseeing the whole project. There are, however, still large numbers of general contractors who with their crews do the main carpentry or masonry work and let out the special jobs to subcontractors.

The number of subcontracts let in connection with a single structure varies, but often includes as many divisions of the building process as the following: excavation of cellar, foundation, construction of frame and walls, window frames and sashes, lathing and plastering, indoor woodwork, roofing, plumbing, hardware, electrical fixtures, heating plant, painting and decorating. Most



### PARTIES INVOLVED IN HOUSING CONSTRUCTION

Reproduced from "The Industrial Organization of Housing," by A. C. Shire.

See footnote, page 26

of these contracts involve the purchase of supplies as well as the hiring of labor. The general contractor computes the total of the subcontracts, adds 10 per cent for overhead (expense of his office force), and 10 per cent for profit, and that amount plus the cost of mortgage loan and architect's fee is what the building costs its owner. If he does not occupy but sells it, the final owner also pays a profit to the lot owner and a broker's commission.

Besides the small contractor we have been discussing there is the operative or speculative builder who builds on his own property. An individual or a company buys acreage, cuts it up into small lots, erects houses upon them (and may even install street utilities), and offers for sale the completed houses, mortgages and all. Some

## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

builders in this class have, in the course of years, erected hundreds of dwellings, although as we have seen<sup>1</sup> they average around 50 houses a year.

According to the census from which the above figures were taken, the total number of builders or contractors of all classes doing construction work of all kinds during 1929 was 144,396.

Building in advance of orders involves a risk, but the speculative builder enjoys certain advantages. In proportion to the size of his project he can enjoy the benefits of large-scale dealings. A single financing expense is distributed over his whole project. He may be able to make a multiple use of one set of architectural plans. The main building operations may be performed by a more or less permanent crew working under his own foreman. Even his sub-contractors may share with him certain discounts due to purchases in larger quantities. Lumber or brick may be bought by the boat-load. An estimate of the reduction in costs achieved by the operative builder has been made by A. C. Shire, a prominent construction engineer.<sup>2</sup>

The practices of the speculative builder have enabled him to build the equivalent in size and accommodation for 20 to 25 per cent less, of which up to 15 per cent may be due to the lower wage scale he pays. Thus he can offer for sale completed dwellings with land, which are cheaper than the apparently equal custom-built product. . . .

The purchasers of his houses, not he, have the high maintenance costs and depreciated values of run-down neighborhoods due to poor planning and shoddy construction.

The speculative builder is a form of land subdivider. He makes his profit from the land rather than from the house. His houses have, therefore, become sales inducements first and living quarters last. He does not produce for use but has diverted the building dollar and the building brain from the task of producing the best shelter for the money, to the task of selling land as quickly and as profitably as possible.

There is another type of large-scale real estate development called the "planned community," but thus far enterprises in this class have not been sufficiently numerous to affect general production methods.

<sup>1</sup> See p. 27.

<sup>2</sup> "The Industrial Organization of Housing: Its Methods and Costs," p. 45.

## HOUSING FOR THE MACHINE AGE

As a construction process the building of a modern apartment house is sometimes an extensive enterprise. It permits the purchase of building materials in larger quantities and creates a longer job for a given crew of workmen. Nevertheless as a whole it is still a multi-contract undertaking, performed by a series of crews, each of which involves a separate overhead and has no motive for doing teamwork with the other collaborating groups. As an illustration of this fact let us examine a list of the materials and installations covered by subcontracts in the case of Knickerbocker Village, a \$6,000,000 limited-dividend construction project on the lower East Side of New York City completed in December, 1934.

### CONSTRUCTION ITEMS, KNICKERBOCKER VILLAGE, INC.<sup>1</sup>

Excavation	Waterproofing, dampproofing, etc.
Foundation	Painting and decorating
Masonry	Ceramic tile
Terra cotta and gypsum partitions	Bathroom accessories
Concrete arches	Terrazzo and linoleum flooring
Cement work	Plumbing and plumbing fixtures
Structural steel	Heating
Miscellaneous and ornamental iron	Electrical work
Carpentry	Electric fixtures
Wood floors	Elevators
Kalamein and hollow metal	Refrigerators
Roofing and sheet metal	Gas ranges
Window frames and sash	Clothes driers
Glass and glazing	Window shades
Plastering and lathing	Window screens
Rough and finished hardware	Incinerators

What we find then is that the dominant figure in house construction is the contractor. But in his class there are no dominant individuals. General contractors and subcontractors can be counted by the hundreds of thousands. From this circumstance flow fundamental consequences.

In the first place it means that the buying of building materials is performed by a vast multitude of individuals. Each contractor's annual purchases are not made at one time but, in the majority of cases, in connection with each building upon which he works. Thus

<sup>1</sup> Report of the State Board of Housing to Governor Herbert H. Lehman and to the Legislature of the State of New York. Legislative Document (1936) no. 41. Albany, 1936, p. 64.

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quantities are reduced while variety in materials used is increased. And the placing of this infinitude of orders goes on in every village, town, and city of the nation.

To this wide distribution of the buying process is due the woeful lack of standardization that exists in building hardware and other construction materials. Secretary of Commerce Hoover's Commission on Waste reported back in 1923 that "producers were keeping in open stock to meet the tastes of the public and their architects: 1,500 patterns of lock hardware, 19,238 sizes of valves and pipe fittings, 139 sizes of paint brushes."<sup>1</sup>

It is absurd, of course, to think that the doors and other parts of a house that require locks are so varied that 1,500 essentially different patterns are actually needed. Fewer than 100 would probably meet efficiently every type of demand. Since, however, the patent rights on locks expired long ago, manufacturers have been free to enter this field. By making some slight change in material, shape, finish, or embellishment, anybody is in a position to put a special brand of lock upon the market and promote its distribution by the usual sales methods. Since the contractors or builders who buy locks exist in every town and city throughout the country, there is a vast field in which the various makers of locks can compete. The result is that the manufacture of locks is divided up among a large number of concerns, each one necessarily turning out a comparatively small portion of the total output, and at unit prices which are high when compared with the possible prices if the total supply were produced by, say, a dozen manufacturers.

In each of the other lines of building materials and equipment like conditions prevent the lower prices attendant upon large-scale production.

But the relatively high cost of building materials at the factory incidental to multitudinous contractor buying does not complete the story of unnecessary expense. Between the manufacturer and the subcontractor toll on materials has to be paid to many middlemen. Take for instance plaster. Here is the story as told the writer by a number of local builders. Of course, it cannot be assumed that every other construction item has to pass through a

<sup>1</sup> Quoted from Bulletin 6, 1937, of the National Housing Committee, 807 Tower Building, Washington, D. C.

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similar hierarchy of distributors, or that these figures apply to plaster everywhere else. But they indicate the possibilities.

### PLASTER, FROM THE MANUFACTURER TO THE WALL.

Manufacturer sells mason-supply dealer (or lumber concern) plaster worth		\$1.00
Supply dealer marks it up 25 per cent		
Subcontractor buys this plaster for		1.25
“ “ adds a labor cost of 100 per cent, making it	\$2.50	
Subcontractor adds a profit of 15 per cent, that is	<u>.38</u>	
General contractor pays	2.88	2.88
“ “ adds 10 per cent for overhead	<u>.29</u>	
“ “ adds 10 per cent for profit	<u>.29</u>	
House builder pays contractor	3.46	3.46
Architect's fee of 5 per cent adds	<u>.17</u>	
Total paid by the house builder		3.63

Thus the single dollar's worth of plaster was multiplied in cost about three and two-thirds times on its journey from the factory to its final place in the composition of a dwelling. Consider the savings possible in the case of a builder who bought the whole output of a factory, directly at its door or even from the first distributor handling it.

Another important factor in high building costs is that of labor. Its proportional share is indicated by the 1935 census of the construction industry made by the Department of Commerce. A study based on returns from over 46,000 contracting firms yielded the following percentages:<sup>1</sup>

Expended for payrolls	32.8
Expended for materials	42.0
Overhead and profits	<u>25.2</u>
Total	100.0

Those figures refer to general construction. A similar analysis—privately revealed to the writer—of the costs of a development of 150 single-family houses in Michigan several years ago showed 34 per cent of the total cost as labor's share. In commenting upon labor's third of the total construction costs, no criticism of the building mechanic is implied. He could tell a grave story of weather,

<sup>1</sup> Taken from an article, "Construction Cost Estimating," by Major E. H. Boeckh, in American Building Association News (Cincinnati, Ohio), vol. 57, December, 1937, p. 700.

## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

accidents, and irregularity of employment. While the mechanic's daily wage is high, higher than that of workers in the manufacturing industry, his total annual income is relatively small and its receipt is interrupted by frequent periods of idleness. But in the bill of the subcontractor who employs him it is naturally the high daily rate rather than the lower annual average that counts.

The conditions which have split up house construction into collections of contract jobs have also made it impossible to obtain the highest efficiency from the labor employed. Each crew coming on the job must spend some time getting acquainted with the situation. After the foundation workers finish there may be a day or two before the carpenters arrive, and so with the plasterers, plumbers, electricians, and painters. At the point where different contracts touch there are likely to be friction and conflict of opinion. Recently a dispute between carpenters and plumbers as to which crew should insert the grooves in floor beams required for the passage of pipes occasioned the owners of a large apartment house project a loss of over \$100,000. Since each crew's work is merged with that of other crews, efficient performance receives little recognition and the incentive of pride in craftsmanship is smothered.

"Secretary Hoover's Commission on Waste estimated that in the building industry waste constituted 53 per cent of the cost. The Federated American Engineering Societies distributed this waste as follows: 65 per cent to management; 21 to labor; and 14 to the public."<sup>1</sup> In view of the facts narrated above, it would seem that this was a conservative estimate.

The present chaotic and scattered character of the building industry means that it is denied the strength, efficiency, and other benefits obtainable through comprehensive organization. For example, take the matter of research. There are corporations specializing in heating plants, refrigerators, washing machines, steel beams, brass piping, illuminating devices, and other accessory or material components of a house which have research departments, but there is hardly one construction organization which employs chemists, metallurgists, and other experts to determine just which refrigerator, which machine, which alloy, or which device is the

<sup>1</sup> Bulletin 6, 1937, National Housing Committee.

## HOUSING FOR THE MACHINE AGE

most efficient and least costly to make, and therefore best to incorporate in a house of a specified character.

The only type of construction organization that now thinks in terms of the whole dwelling is the prefabricator, but the pioneers in this field are as yet not strong enough to do much more than study and experiment with their special problem—that of devising efficient units, of walls, floors, roofs, and the other main elements of a dwelling. They have made progress, but they have not yet been able to secure a sufficient volume of business to employ the research staffs they could profitably use.

In the automobile field scientific study and invention play an enormous role. According to a recent survey the records of General Motors revealed no fewer than 3,000 motor research activities.<sup>1</sup> When the automobile manufacturer invests vast sums in the patterns and machinery required for putting a new model into production, he does so with confidence, because his researchers have already ascertained the weaknesses of the current model, his planners have aimed directly at overcoming those defects, and his testers have subjected samples of the new car to rigorous road trials.

The machine is so conspicuous a feature of modern industry that we are likely to think of the whole process as essentially mechanical. We forget that every machine is the product of brain work and that it is started, fed, and stopped by human beings. Assembly lines do not put products together; they simply pass jobs along to workmen. In reality a machine is only an extension of the hands, arms, or legs of a person, much as the powers of the human eye are extended by the microscope, telescope, and camera. Without its tenders a machine is worthless. Thus the two main personnel constituents of an industrial corporation are represented by the crew with its lathes and power-driven hammers and the staff with its slide-rules and adding machines. The unit is not an apparatus; it is a living organism.

The term "machine" is often used—as in the title of this book—as a symbol of this epoch, and it must be admitted that the modern industrial organization bears a decided resemblance to the machine.

<sup>1</sup> Barclay, Hartley W., "The Production of Value," in *The Atlantic Monthly*, vol. 161, June, 1938, p. 838.



## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

Thus all of the following statements, describing an up-to-date type of manufacturing corporation, apply also to the machine:

1. It is composed of many parts, each part performing a special function.
2. Its creation, upkeep, and operation occasion high costs.
3. Its use is economically justified only if it receives vast quantities of raw material and turns out a vast product.
4. It was put together by human beings, after much thinking and through the exercise of a peculiar skill.
5. *It is driven by a single mind* that co-ordinates the activities of all departments, maintains morale and discipline among staffs, and innervates the whole organism with the dominant purpose of creating the most satisfactory product.

As to the last statement, it may at first seem that only the italicized portion applies to the machine. If we remember, however, that the machine tender regulates speed by controlling the supply of power and secures smoothness through lubrication; that the inventor and maker obtained co-ordination of function and singleness of purpose; and finally, that the tender, inventor, and constructor are all in the last analysis controlled by the head of the corporation—then we can see the double pertinence of even the fifth statement.

If this interpretation is true, it can hardly fail to reduce the significance of the mechanical aspect of modern technology and to place the emphasis where it belongs, upon human organization. When we watch an automobile assembly line we should be impressed, not so much by the tracks, trucks, and machinery which slowly convey the growing chassis through the lane of busy workmen, as by the mental activity which made that procedure possible. Our minds should try to visualize the human ingenuity through the operation of which the automobile parts were produced in vast quantities and so distributed among those mechanics that each could perform his allotted task during the few minutes a chassis stopped before him.

In the matter of house construction the fact that there is no conceivable assembly line that could turn out finished houses is not significant. What is worthy of our attention is the fact that there is no large special organization operating in this field.

## HOUSING FOR THE MACHINE AGE

### WHY NO LARGE HOUSING CORPORATIONS?

When we first approach this question we cannot fail to be struck with the strangeness of the fact itself. All through the business world we see centralization, amalgamation of small units, and many other manifestations of the trend toward bigness. But not in commercial housing.

An important principle in modern business practice is that of "spreading the overhead." A company works out a new manufacturing process or an improved management procedure. It discovers that the new process or method can also be employed in an expanded plant or in additional plants without a proportionate increase of overhead. Distributing this expense over a larger product or an increased patronage reduces the unit cost of its output. The chain groceries, chain drugstores, novelty stores, filling stations, hotels and restaurants, operating under a centralized management, all exemplify this principle. In view of the management and other overhead wastes now observable in house construction, why have not great corporations, with branch offices in all the leading cities, also invaded this field?

There are, it is true, in most cities large building concerns to which business men apply when they want to erect a factory, an office building, or an apartment house. But such concerns do not shape up the project. An entrepreneur works out the scheme, obtains the land, and has the plans drawn. The construction concern usually does not do the actual building. It acts as a general contractor and divides the whole project into a number of smaller jobs, each to be performed by a subcontractor. Why should there not be special corporations, devoted solely to the designing, constructing, and marketing of apartment houses? Certainly one large expert staff could supply plans, models, and supervision for branches in several cities. Standardized materials and equipment could be purchased in large quantities directly from manufacturers, and supply depots could be maintained. When keen business men see the savings in costs that could be made in this field, why do they stay out of it?

In the single-family field we know, from the experience of the operative builder (see page 29), that substantial savings in building

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costs can be made through a relatively small increase of business volume. If he can secure a 20 per cent reduction in costs with an average of only 50 houses erected, why does he not run his annual volume up into the thousands?

### DIFFICULTY OF OBTAINING BUILDING SITES

To understand the answers to these questions it will be necessary to consider some fundamental facts about raw materials. The manufacturer of automobiles can buy his steel and other requisite materials at prices he can afford because he is able to negotiate in a buyer's market. There are so many sources of these materials that the owners, or manufacturers of them, compete with one another in efforts to obtain orders from the motor car builders. A constructor of dwellings, desirous of obtaining his most essential raw material—building sites—in large quantities, is not, however, in a similar position. To understand his difficulties we shall need to look at the various routes by which builders come into possession of land, or get their opportunity to erect structures upon it.

As the population of a city grows its dwellings gradually spread over areas called raw land or acreage. This exists mainly in the form of farms, country estates, and golf courses. There are two distinct real estate methods by which this land is prepared for the activity of the builder: (a) subdivision into lots or individual house sites, and (b) development and construction by tracts.

(a) The subdivider buys or secures control of a farm or an estate and cuts it up into building lots of a size that, in his opinion, is most likely to suit his prospective buyers. These lots are shown on a map that displays the streets by means of which access to the lots is obtained. The lots are sold, often through high-powered salesmanship, to persons intending to build upon them later and also to those who hope to sell later at a profit.

Subdivision is the practice that provides small contractors with the bulk of their business, and they, it will be remembered (see page 27), perform the larger part of the nation's building. Details as to the extent of this real estate method and the disastrous consequences that have come from overdoing it will be discussed later in Chapter IV.

When farm land is cut up into hundreds of small house lots and

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distributed among hundreds of owners it is practically condemned, under existing customs in land ownership, to improvement through a multiplicity of construction projects. The subdivided lot stays where it is, but the title to it may travel to any part of the globe. Once a tract has been divided up among many owners it is ordinarily not feasible to put it together again because of the actions or attitudes of the various owners. Here and there a building goes up. Some owners want to wait for higher prices. Others plan to build when they have saved more money. The lots have been placed, in a word, under the control of individuals moving in different directions, who cannot be compelled to take the same course.

The persistency of the subdivision practice is rooted in almost universal and instinctive desires of men and women. The plot may be only 50 by 100 feet, but when a young couple can stand on it with the deed in their hands a thrill like that of the early settler, looking out over his virgin soil, steals through their hearts. Again, the ownership of a lot is a concrete, easily taken step toward the realization of a family ambition that is not only highly instinctive but is the subject of organized educational effort because of its social implications. Acquiring the lot in advance of construction permits anticipatory delights, the satisfaction of leisurely planning, and the expression of individuality in the style of the home. Many people still like to acquire their homes in a piecemeal fashion and do not realize what this individualistic luxury is costing them.

One of the reasons why the public has never learned a more modern way of satisfying the urge for home ownership is the facile nature of the subdivision business. It requires little special ability, no plant, no large staff, and scarcely any overhead. It has the fascination of gambling and often yields spectacular profits. People are likely to forget the losses which occur, while instances of large gains linger on and motivate fresh projects.

The early cutting up of land, with its direful consequences upon the construction of dwellings, is a practice that cannot be stopped by the giving of advice or the most skilful educational program. The only practical method of bringing about improvement is one that will involve gradual changes and not suddenly disrupt present real estate activities.

## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

(b) The development of land by tracts is the chief source of sites upon which the speculative (or operative) builder erects his structures and performs his small part of the total construction business. These tracts vary greatly in size, shape, and other characteristics. In number of lots they may run from a half-dozen to several hundreds.

Equally varied are the kinds of ownership through which they may pass before they reach the builder. First bequeathed in a legacy to a non-resident heir, the old estate may be obligingly taken off his hands by a local speculator who knows the latent value of the land. It may pass through several other ownerships—all motivated by speculative profits—before it reaches the developer, the man who wishes to sell it at a profit but who does something, at any rate, to make the land more useful.

He prepares a subdivision plan, builds houses upon the lots, and frames up a selling scheme. But he remains—as Engineer Shire pointed out<sup>1</sup>—primarily a dealer in land and secondarily a builder of houses. Why the developer seldom becomes an out and out specialist in construction is easily understood when one considers the psychology of buying real estate. The main principle is to keep from the owner of the land you are seeking any idea of the strength of your desire. Indeed if you can learn that he needs to sell, then you can probably take the land off his hands at somewhere near your price. Your good fortune will be still greater if the tract you thus acquire is large.

If the land you have to start with must be pieced out with other parcels before it is large enough for a satisfactory development, then you are in trouble. When you approach the owner of an adjoining plot he immediately surmises how much you desire it and his price goes up. If perchance you close with him and proceed to the next adjacent owner, you are likely to find that his price is still higher. While assemblages at reasonable prices are sometimes made, it is generally through good luck.

The reason, then, why the speculative builder does not lay in large quantities of building materials, develop permanent staffs, and make construction his chief business is because he never knows when he will be able to secure his next tract, or how large it will be.

<sup>1</sup> See p. 29.

## HOUSING FOR THE MACHINE AGE

Now and then fate hands him a tract and he builds it up the best he can, but he keeps on the contractor basis.

The builder of large structures in the downtown sections of cities does not draw their plans. He does not know what sizes of materials will be specified in his next job. Therefore he remains a contractor and hands out work to subcontractors.

The difficulties lying in the way of securing a steady supply of sites suitable for large apartment houses, involving in many instances an assemblage of several plots, would be even greater than those experienced by developers working in city outskirts. This fact amply explains why it is that no large corporation is now specializing in the planning and construction of multi-family dwellings on a large scale.

It would seem that the reason for the non-appearance of modern industrial organizations in the field of housing is now clear. Research, specialization, and mass production are the characteristics of up-to-date technology. But the research cannot be sustained, nor specialization practiced, nor a quantity-output obtained unless there is a quantity-input of raw materials. The construction machine cannot turn out houses unless sites are fed into the hopper.

But building land has been so cut up and scattered that it cannot now be brought together in blocks large enough for mass treatment. If American municipalities can find a method for placing within reach of construction organizations a continuous and dependable supply of comprehensive housing plots, there is no apparent reason why large-scale construction of dwellings should not get promptly under way. Before taking up suggestions as to a method for accomplishing this result, let us examine some experience abroad bearing upon this question.

### ENGLISH EXPERIENCE

Of the 3,000,000 houses which have been built in Great Britain since the World War, 2,000,000 were erected by private enterprise. Even the 1,000,000 subsidized by government were usually erected by regular building contractors, under the supervision of the municipalities which employed them. Herbert U. Nelson, who recently surveyed housing abroad for the National Association of Real Estate Boards, reporting on the English methods, pointed out

## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

that most of the private construction was done by *large companies with ample capital*.

They buy lumber by the shipload, and some of them maintain their own brick yards and fabricating plants. One builder who was interviewed erected and sold more than 4,000 small dwellings last year, and will exceed that number this year. Mr. Nelson comments that "the excellent homes he is able to construct and sell at prices below our bare building costs indicate that there is much merit in large-scale operation as a means of lowering home costs."<sup>1</sup>

Further evidence on this point was furnished by Sir Harold Bellman, managing director of a large English building society, in the course of a recent address delivered in New York City:

I have been impressed by the fact that most building in this country seems in the main, although not exclusively, to be intrusted to firms so small, so limited in every department, that by comparison you seem to be peddling in houses rather than going in on a scale comparable with your efficiency in other fields. Here you refer to a builder as one who builds ten or twenty houses a year. In England we think of builders in terms of those who build two or three thousand houses a year. I wonder when the American genius for mass production is going to start in the housing field. There is no reason why you should not achieve in this country a success even greater than we have in my own.<sup>2</sup>

John W. Laing, chairman of the board of directors of a large construction concern, who is sometimes called "the dean of British home-builders," addressed the New York Building Congress and the Committee for Economic and Social Progress on September 29, 1937, at Hotel Astor, New York. In the course of his remarks, he said:

The lowest selling price of my firm's smallest semidetached house in London is \$3,000. The purchaser in this case pays \$200, after which his weekly outgoings for interest, repayment of capital over twenty years, and rates (taxes) are \$5.00. A similar house in a small provincial town costs \$2,500, and the weekly outgoings amount to \$4.00, as compared with the rent of a less attractive municipal house in London—about \$4.00 and, in a small provincial town, about \$3.00. Thus, it does not cost much more to buy a private house than to rent a municipal one. If people realized the

<sup>1</sup> Cooper, Lee E., "Mass Output and Co-operative Purchases Studied as Means of Cutting Home Cost," in *New York Times*, September 7, 1937.

<sup>2</sup> *New York Herald Tribune*, May 17, 1938.

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## HOUSING FOR THE MACHINE AGE

national value of house ownership, and good-class builders, or well-formed companies undertook house-building on a large scale and, if necessary, the Government assisted in the matter of land and loans—I believe good homes would soon be provided for 85 per cent of the people without subsidy.<sup>1</sup>

Look at England's achievement! A vast number of new dwellings and two-thirds of them erected without government subsidy! With that before us, we can understand the statement that "Britain built herself out of the depression." Much less is said, however, about the fundamental factor that made the achievement possible. Mr. Nelson partly reveals it when he points to the *large construction concerns*. The fact that Mr. Laing's concern is so great a one makes the achievement still more vivid. The real secret lies in the conditions that enable Mr. Laing's company and other big firms to work on extensive projects—to construct dwellings in large quantities. That secret is found in the system, whatever it may be, that offers building sites in large parcels.

Here are the main conditions. The British government exercises the right of eminent domain in the clearance of slums, and in computing compensation for the land makes no allowance for the buildings that may exist upon it. Building sites are therefore not unduly costly. Municipalities also have the power to buy land for housing purposes, and they exercise it. In letting subsidized projects to contractors, they are in position to deal the land out in large parcels. Furthermore, in England real estate is regarded more as an investment, as a source of income, and not so much as a means of quick profits. Thus it is easier to assemble a large plot in the ordinary way. The facility and the certainty with which extensive plots can be secured have enabled industrial specialization to lower the prices of new houses in England.

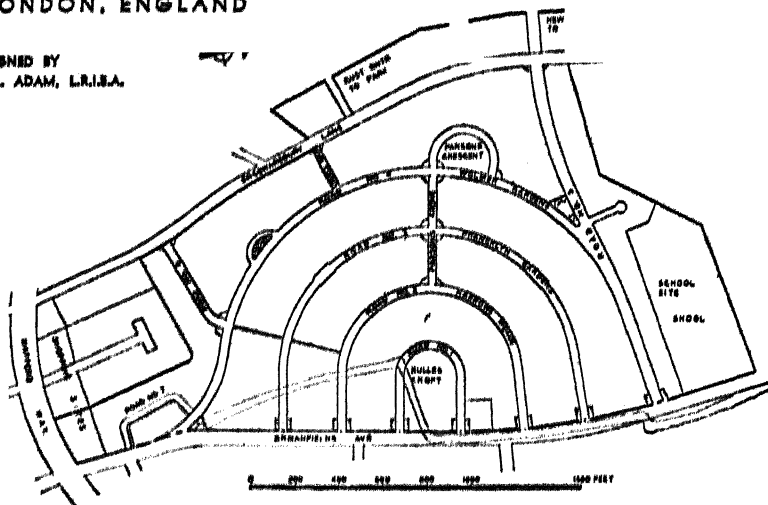
### STOCKHOLM PLAN

In Sweden, the city of Stockholm has worked out a plan for providing low-cost dwellings which has attracted wide attention from students of housing. With a down payment of \$80, the performance of some unskilled labor on their own dwelling, and a

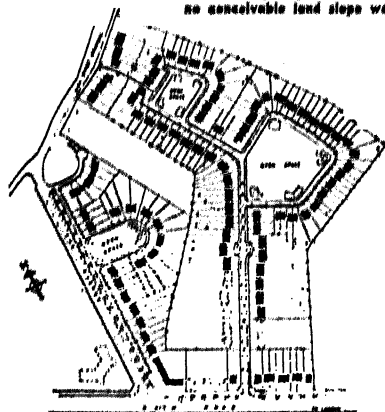
<sup>1</sup> This address was published, with plans and illustrations, in *The Architectural Record* for November, 1937 (vol. 82), pp. 66-71.

# PLANS OF DEVELOPMENTS BY JOHN LAING AND SON, LTD., BUILDERS LONDON, ENGLAND

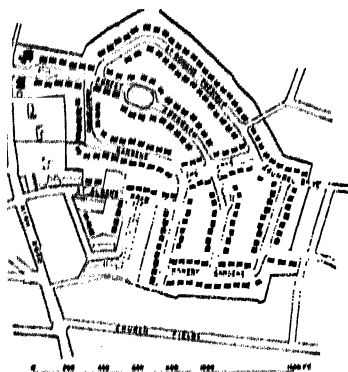
DESIGNED BY  
D. A. ADAM, L.R.I.B.A.



**HODGEKREW ESTATE.** This scheme with its series of circles resembles *Older's Green*, an older and financially successful development. This formalistic plan pattern is usually discarded by town planners because no conceivable land slope would fully justify this shape.



**CRANFORD ESTATE.** For this estate the Laing architects prepared several layouts and found it meant either a very dense development or an open one as shown. This open development resulted in such an attractive scheme that the extra expenditure for roadways and land was considered fully justified.



**WOODFORD ESTATE.** The uneven site influenced the location of roadways. In preparing the layout the management formed a road through the lowest vale and had external roads skirting the estate. This method of forming an external road was found to be most economical for the

THREE OF TEN "HOUSING ESTATES" IMPROVED BY  
JOHN LAING AND SON, LTD.

Reproduced from Architectural Record, November, 1937

## HOUSING FOR THE MACHINE AGE

monthly payment of \$20 through a period of thirty years, a family can secure a two-story and basement frame house, on a lot 75 by 100 feet, in a tract about nine miles from the center of the city. This plan has been successfully followed since 1926. It does not cost the taxpayers of Stockholm one cent, nor has the home-buyer been subsidized in any way.<sup>1</sup>

An important feature of this plan is the contribution which the prospective home-owner can make toward the cost of his house through voluntary work in his spare time. Even though he is not a skilled carpenter, he can be easily instructed how to accomplish much, because of the mill-work performed by the municipality—for example, all lumber items are cut to exact size at the factory, numbered, and bundled. Interlocking wall sections are fabricated at the mill, in which all doors are hung and windows and hardware installed before leaving the factory. Again, the municipality was in position to devise this clever scheme because it was able *to supply the land* on which that kind of plan could be carried out. Stockholm had gone outside of its limits and purchased some 20,000 acres at a cost of about \$6,000,000.

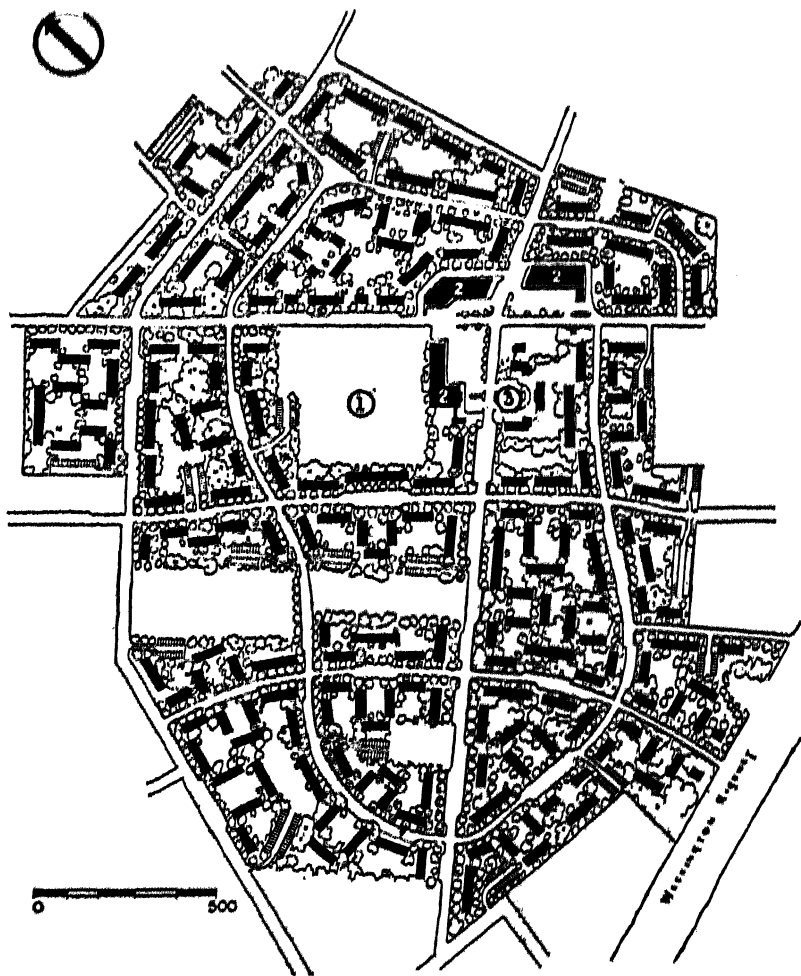
We turn now to a domestic project which, for our purpose, is significant as respects organization and construction methods.

### BUCKINGHAM DEVELOPMENT

Allie S. Freed came out of a New York restaurant one rainy day in 1923 and, standing under a cheap umbrella, watched the shabby taxicabs shoot by. "A taxicab," he soliloquized, "is just a rich man's umbrella." Out of that reflection came the idea that the construction of handsome, distinctive taxicabs would be a good business. He promoted the idea and in a few years became a millionaire.

In 1934 he had another idea. He brought a number of business men together in a body called The Committee for Economic Recovery. As chairman he began to send out beautifully printed brochures, telling about ways in which business and government could co-operate more effectively in bringing about recovery. A year later he laid before President Roosevelt an ambitious plan for

<sup>1</sup> Oxholm, Axel H., *The Small-Housing Scheme of the City of Stockholm*. U. S. Department of Commerce, Government Printing Office, Washington, 1935.



**Plan of Buckingham when entire project is completed; a neighborhood unit of 2,000 families almost completely self-contained. "Through-traffic" is shunted around the community. Local services and recreational requirements are provided at points of greatest convenience and safety. 1. Proposed School Site and Playground; 2. Shops; 3. Community Center.**

**PLOT PLAN OF BUCKINGHAM COMMUNITY DESIGNED BY THE LATE HENRY WRIGHT, ASSISTED BY ALLAN F. KAMSTRA AND ALBERT LUEDERS**

Reproduced from "Buckingham: Housing Laboratory," by Oscar Fisher, in *Architectural Record*, January, 1938

## HOUSING FOR THE MACHINE AGE

building low-cost houses. It would draw out millions of private capital, put multitudes to work, and construct vast numbers of inexpensive dwellings. When his idea was fully developed it took the form of a large housing project. Although now less than one-third completed, its popularity and the methods employed in its construction have attracted wide attention. The newspapers of January 9, 1938, featured it in their real estate sections. Two days later, Allie Freed, only forty-six years old, lay dead of pneumonia in a Washington hospital.

His development, called "Buckingham," occupies a 30-acre site in Arlington, Virginia, eight miles from Washington, D. C.<sup>1</sup> It is a multi-family scheme with two-story brick dwellings covering only 20 per cent of the land, the remainder being devoted to playgrounds, parking space, lawns, and interior walks. A convenient shopping center and a school are included in the development plans.

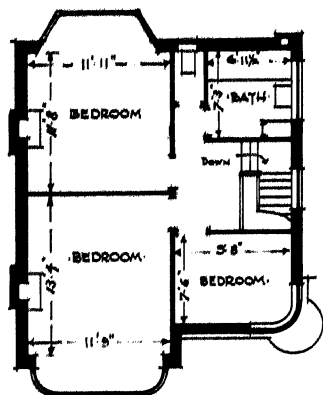
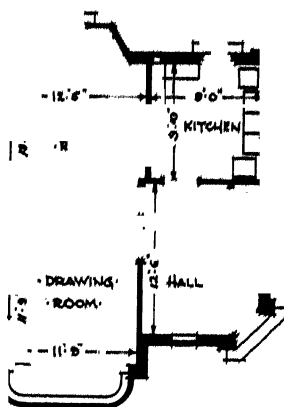
The apartment suites, ranging from two to seven rooms, are piped and wired for gas and electric cooking, and provided with hot-water heat from central oil-burning plants. The average rental paid is less than \$50 per month, so that a young couple with total earnings of \$2,400 can enjoy one of these suites for less than one-quarter of their annual income. Apartments began to be ready between September and December, 1937. The first of January found 275 families already in occupancy, at which rate of leasing it was expected that all the 622 suites in this project would be taken within several months. Sixty acres of adjoining land have been acquired by the promoting organization for a possible future expansion of the community to a total of 2,000 families.

As president of the Paramount Motors Corporation, Mr. Freed was familiar with automobile construction. He knew the value not only of an assembly line but of other modern industrial methods. He set up a research staff for the purpose of discovering the most efficient types of boilers, refrigerators, bathroom and lighting fix-

<sup>1</sup> Many of these facts have been taken from an article entitled "New Ideas Used for Model Housing," by Lee E. Cooper, which appeared in the real estate section of the New York Times of January 9, 1938. More fully elaborated, illustrated descriptions of Buckingham, with details of construction, financing, and management, will be found in the article by Oscar Fisher, "Buckingham: Housing Laboratory," in *The Architectural Record*, vol. 83, January, 1938, and in "Buckingham: A Laboratory for Housing Management," in *Real Estate Record*, National Edition, vol. 141, January, 1938.



"Olympia," including land, roads, sewers and financing, sells for \$5,325



Plan of above

ONE OF THE HOUSES CONSTRUCTED BY JOHN LAING AND SON,  
LTD., BUILDERS, LONDON, ENGLAND

Reproduced from Architectural Record, November, 1937

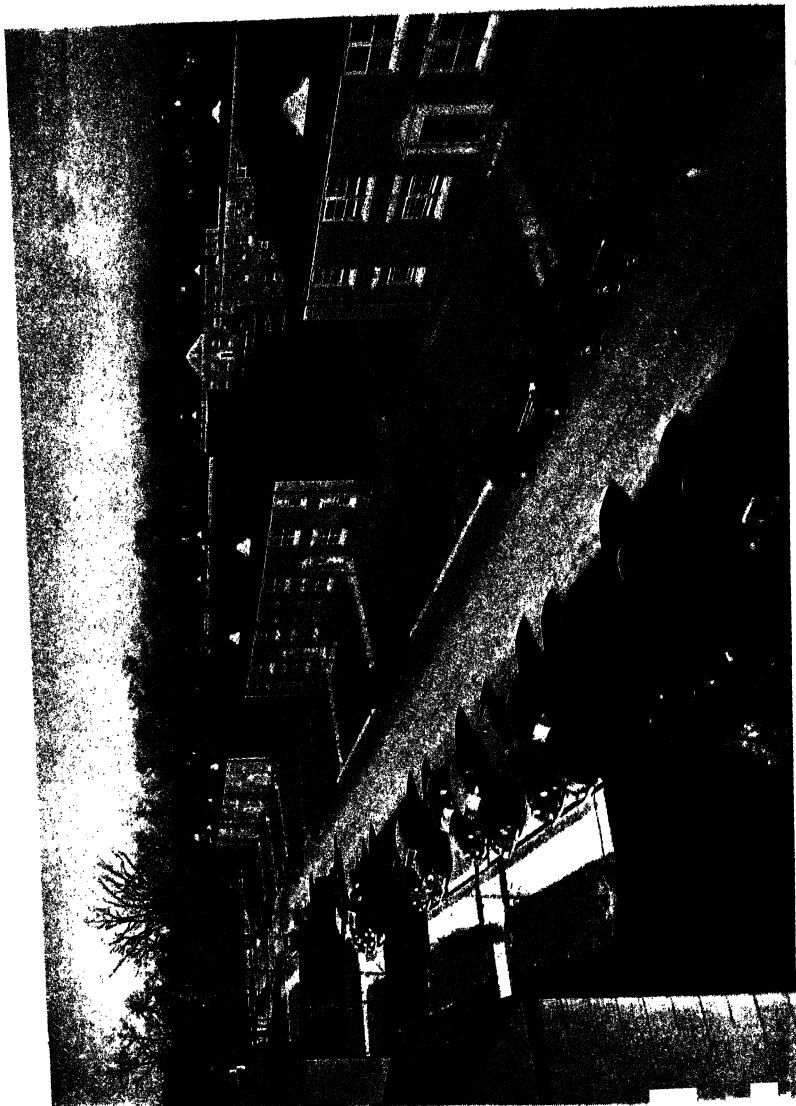


Photo by F. S. Lewis

## RECESSED PARKING BAY IN BUCKINGHAM, VIRGINIA

Reproduced from Architectural Record, January, 1938

## CONSTRUCTION—THE AUTOMOBILE AND THE HOUSE

tures, and building hardware. He called in the building materials people and learned how factory prices compared with dealers' prices. Agreements were reached with most of the manufacturers and their dealers to supply their products on terms which would yield to both fair profits on large-scale purchases. Deliveries were adjusted to construction needs at the site.

Standardization was sought in the layout of both suites and apartment buildings. A three-room unit was devised that might be used in buildings of almost any size or shape. There was also a five-building unit—structures grouped around a court—that might be the pattern for a single small apartment development or be repeated many times in the construction of a community. By varying the number of suite units in a building, by painting some of the brick exteriors white and others red, and by varying the entrance porches, monotony of appearance was avoided.

So much for construction methods. But there were other factors of success. The original layout of the development was made by a professional community planner, the late Henry Wright. To secure tenants an ingenious renting method was used, and for permanent management a special model system has been set up. The construction costs, including expenses of the elaborate experimentation, have been computed at only \$1,181 per room, with annual maintenance cost estimated at \$47.54 a room. Insurance organizations have made loans covering about 73 per cent of the value of the project and the Federal Housing Administration has insured them against loss. Taxpayers are making no contribution. It is a self-sustaining undertaking. And yet, so highly are the rental values of Buckingham regarded by the Washington government clerks, that they are flocking to the place and it has been found necessary to set up a waiting list.

It is not at all strange that this experiment is being watched with the greatest interest by architects, planners, and builders. It is a tribute to the ability of its promoter. It promises to demonstrate—just what Mr. Freed set out to show—the fundamental gains that are possible when one set of brains can control a large industrial enterprise from raw material to finished product. The same sort of achievement is common in American industrial history. Given the right opportunity, it can be repeated many times in the



## HOUSING FOR THE MACHINE AGE

field of housing. Will it lower the prices of housing? In this one project Mr. Freed made a real advance. In his next project he would undoubtedly have applied the results of his experimentation and experience with Buckingham. In each succeeding job, he would have made greater savings and offered still more attractive models.

But what is the basis of the assurance, which Mr. Freed undoubtedly had, that the organization he built up so carefully would have the opportunity of working upon a succession of large tracts? Let us look at the unique conditions under which tracts meeting the requirements of a rural multi-family development can be acquired. Mr. Freed knew that outside the subdivision belt of almost any large city—within a radius of 12 or 15 miles—there are many suitable pieces of land. Any farm of from 30 to 100 acres, not too hilly, whose owner is ready to retire or has some other motive for selling, makes a good land prospect. The developer can pay the farmer much more than the land is worth for agricultural purposes and still make a nice profit in the process of improving it. For the builder of a rural housing project the land acquisition problem is much simplified, since one deal ordinarily gives him a large plot and he generally is working in a buyer's market.

These three examples exhibit housing projects whose large-scale character was dependent upon a solution of the land acquisition problem—in each case a different solution. The Buckingham enterprise has added value in that it shows an automobile manufacturer applying the techniques of mass production to housing. Whether it is a good national policy to encourage the extension of the multi-family dwelling to the rural districts is another and very serious question. What effect it will have upon municipal property values, if it becomes widespread, is also a problem that should be studied. There is no doubt, however, that Mr. Freed's effort to create a special, up-to-date house-construction organization will exercise a stimulating influence upon the industry.

But our problem still remains—how can large-sized plots of land be made regularly available in American cities to house-construction concerns?

### III. THE NEIGHBORHOOD UNIT FORMULA

**A**N INSTRUMENT that is required to develop house building into a large-scale industry is a new form of co-operative relationship into which a municipality and a construction corporation could enter. By its terms the city would use its powers to place a large building plot within the reach of a corporation and, in return, the latter would erect upon the plot a residential development of a character yielding public benefits not attainable under existing real estate methods. Before the city could obtain from the legislature power to condemn land and turn it over to the corporation, however, the lawmakers would have to be convinced that the resulting benefits would be substantial enough to justify another extension of eminent domain powers. The only device that will meet this need is a formula defining the requirements which projects would have to meet in order to become the subject of this bargain. Such an instrumentality would enable a corporation to shape up the right kind of project and the municipality could use it as a yardstick in determining whether a submitted project would give citizens the stipulated benefits.

To be serviceable in the highest degree this formula should meet certain requirements:

1. It should not be a detailed plan of a model residential development, since there are many local conditions which a specific plan would not meet. Instead it should state principles and standards in definite, objective terms which the professional planner could apply in preparing a plan suited to the topography and other characteristics of a particular site.

2. It should be expressed in city planning terms, since it would deal with building plots, highways, recreation spaces, uses of land, location of public buildings, and those public services which require structures large enough to involve site planning.

3. To be practical, it should describe a project sufficiently self-contained so that, with the boundaries fixed, it would be possible to go forward with construction without waiting for the planning of

## HOUSING FOR THE MACHINE AGE

adjacent areas. Many an excellent project has failed of realization because there was no way of detaching it from plans relating to surrounding districts and dealing with the project by itself.

As to working out the content of the formula, the method of procedure seems clear. It should cover both dwellings and their environment, the extent of the latter being—for city planning purposes—that area which embraces all the public facilities and conditions required by the average family for its comfort and proper development within the vicinity of its dwelling. In this study that area is called the family's "neighborhood." The facilities it should contain are apparent after a moment's reflection. They include at the least (1) an elementary school; (2) retail stores; and (3) public recreation facilities.

The conditions surrounding the dwelling which a family most consciously seeks come under the head of residential character. This quality depends upon many and varied features. In an apartment house district, it may rest upon location of the site, architecture of the building, or the character of its courts. In a single-family district, harmony in the style of dwellings, amount of yard devoted to lawns and planting, and comprehensiveness and excellence of the entire development plan govern residential quality. Most important in this day of swift-moving automobiles is street safety. This can best be achieved by constructing a highway system that reduces the points where pedestrians and vehicles cross paths and that keeps through traffic entirely out of a residential district.

The formula for a city neighborhood, then, must be such that when embodied in an actual development all its residents will be taken care of as respects the following points: They will all be within convenient access to an elementary school, adequate common play spaces, and retail shopping districts. Furthermore, their district will enjoy a distinctive character, because of qualities pertaining visibly to its terrain and structure, not the least of which will be a reduced risk from vehicular accidents.

### NEIGHBORHOOD UNIT PRINCIPLES

A formula which, it is believed, meets all the above requirements was elaborated and published in volume 7—*Neighborhood and*

## THE NEIGHBORHOOD UNIT FORMULA

Community Planning—of the Regional Survey of New York and Its Environs.<sup>1</sup> In that publication, "the neighborhood unit—a scheme of arrangement for the family-life community" is set forth in detail. Essentially, it consists of six principles:

1. *Size.* A residential unit development should provide housing for that population for which one elementary school is ordinarily required, its actual area depending upon its population density.

2. *Boundaries.* The unit should be bounded on all sides by arterial streets, sufficiently wide to facilitate its by-passing, instead of penetration, by through traffic.

3. *Open Spaces.* A system of small parks and recreation spaces, planned to meet the needs of the particular neighborhood, should be provided.

4. *Institution Sites.* Sites for the school and other institutions having service spheres coinciding with the limits of the unit should be suitably grouped about a central point, or common.

5. *Local Shops.* One or more shopping districts, adequate for the population to be served, should be laid out in the circumference of the unit, preferably at traffic junctions and adjacent to similar districts of adjoining neighborhoods.

6. *Internal Street System.* The unit should be provided with a special street system, each highway being proportioned to its probable traffic load, and the street net as a whole being designed to facilitate circulation within the unit and to discourage its use by through traffic.

The six principles above enumerated do not constitute the description of a real estate development or of urban neighborhoods in general. Together they do not make a plan. They are principles which a professional planner—if so disposed—can observe in the making of a development plan. If they are complied with, there

<sup>1</sup> Perry, Clarence Arthur, *The Neighborhood Unit*, Monograph 1 in vol. 7, *Neighborhood and Community Planning*, of the Regional Survey of New York and Its Environs. Published by Committee on Regional Plan of New York and Its Environs, New York, 1929. (To be found in most public libraries.)

Since discussion in the present study will involve frequent references to the original presentation, the following condensed form will hereafter be used: *New York Regional Plan*, vol. 7.

## HOUSING FOR THE MACHINE AGE

will result a neighborhood community in which the fundamental needs of family life will be met more completely, it is believed, than they are now by the usual residential sections in cities and villages.

In this scheme, the neighborhood is regarded both as a unit of a larger whole and as an entity. It is not held, however, that in an ideal city plan the whole municipality could be laid out in neighborhood units. It is recognized that a city is composed of various areas each of which is devoted to a dominant function. There are industrial districts, business districts, and large areas used as parks and cemeteries. A neighborhood unit would have local retail business areas, but besides these there would also be downtown or main business districts, and subsidiary business centers serving large sections.

It is apparent that the unit scheme can be fully applied only to *new* developments. Thus it is limited to the unbuilt areas around the urban fringe and to central deteriorated sections, large enough and sufficiently blighted to warrant reconstruction. Nor is it expected that the whole of a residential section, in any practical plan, could be laid out in unit districts. There would generally be irregular areas set off by main highways, railways, streams, quarries, or parks, of a size or location that would make them unsuited for inclusion in a unit plan.

In more detail just what do the six principles of the neighborhood unit formula involve? Professional planners and other specialists may wish to refer to the original presentation in volume 7 of the New York Regional Plan. For the general reader the following condensation of that presentation will suffice.

### SIZE RELATIONS

A residential unit development should provide housing for that population for which one elementary school is ordinarily required, its actual area depending upon population density.

What, as to the number of residents, does this requirement really indicate? According to authorities in school administration, a public school equipped with an auditorium, a gymnasium, and other accessories, should have a capacity of from 1,000 to 1,600 pupils. Such a costly plant, they hold, should handle a sizable load. As

## THE NEIGHBORHOOD UNIT FORMULA

a matter of fact, however, public schools are being built in small communities for 500 and even fewer pupils, while large cities, like New York, are constructing schools with 2,500 seats. The most practical procedure in determining the standard for a given city is to ascertain from the local school board the number of pupils it considers requisite for a model elementary school, and to adopt that figure.

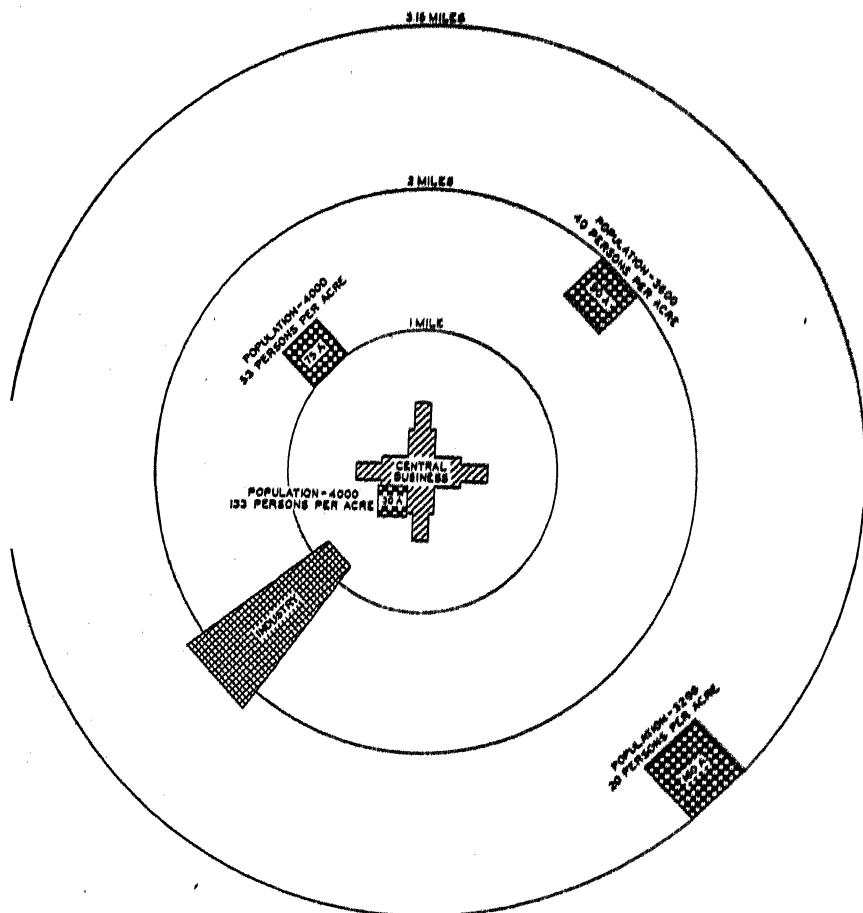
The next question is: What proportion of the total population is represented by boys and girls in the elementary school age-group? This ratio varies greatly in American cities, but the average is about one-sixth. On the basis of the standard capacities given above, an efficient urban school district may range in population from 3,000 to 9,600 or say 10,000 persons. From the standpoint of educational service it is evident that considerable latitude is allowable in fixing the population standard.

There are, however, several other requirements that must be met, in which area or distance is a factor. Suppose we take a neighborhood of 6,000 people. Would the area of such a district be so great that children living at its border would have to walk too far in attending a school at its center? Obviously, the answer depends on how closely dwellings are placed. Let us take the density of 37.5 persons per acre, that is frequently found in single-family subdivisions. The requisite plot would contain 160 acres. If it were square, it would be half a mile, or 2,640 feet, on a side. A circle with a radius of a quarter-mile could be inscribed within it. Thus a school located at its center would be within a quarter of a mile of all its families except those living in the corners, outside the circle, and the farthestmost of those would be only a third of a mile from the center.

Take an area less populous—that of 5,000 people in a 200-acre plot, a common suburban density of only 25 to the acre. Here the great bulk of the residents would be within a radius of only 156 feet beyond a quarter of a mile.

In these two examples we have dealt with probably the greatest travel distance that would be required by a commercial development or an efficient school administration. There might be sparser subdivisions, but there is no good reason why they should be greater than 200 acres, or indeed than 160 acres. When we move toward

# HOUSING FOR THE MACHINE AGE



NEIGHBORHOOD UNIT SCHEME APPLIED TO  
A CITY OF 200,000 POPULATION  
SIZE AS AFFECTED BY DENSITY AND LOCATION

SCALE IN FEET  
0 1000 2000 3000 4000  
REGIONAL PLAN ASSOCIATION, INC., NEW YORK CITY

## THE NEIGHBORHOOD UNIT FORMULA

the center of the city higher densities are usually encountered. Even though school districts may contain more people, the congestion is so much greater that there is a net shrinkage in the size and the distance to be traveled. Pupils in slum sections seldom have to walk as much as a quarter of a mile.

Let us now see what educators say about the school radius. "Children of the elementary school grade should not be required to travel more than one-half mile to school."<sup>1</sup> The Committee on School House Planning of the National Education Association made practically the same recommendation in these words: "In cities it is generally agreed that the contributing area for an elementary school may have a radius of one-half to three-quarters of a mile."<sup>2</sup> From these statements it is clear that the desirable population for a school, when housed at current densities, will live well within the travel distance which our educators say should not be exceeded.

Will a population size that meets the educational requirements fit the other neighborhood service radii? Among city planners it is a rule of thumb that families should be able to find a grocery or drug store within a half-mile of the home—the same maximum travel standard as the school. According to the unit formula, shopping districts are located in the periphery of the neighborhood, instead of, as in a village, at the center. There can be as many districts as the population's buying capacity requires and they may be located at points in the rim where convenience indicates. In the 160-acre plot, of a half-mile on the side, four districts at the corners would bring shopping facilities within a quarter of a mile for most families, while only two districts at diagonally opposite corners would place these facilities within a third of a mile for a majority of the residents. Thus our school district size comes within the travel requirements for retail shopping.

As to the playground service, wide experience shows that most children will not travel more than a quarter of a mile to use a playground. A large schoolyard at the center of a square 160-acre plot would be within this quarter-mile radius for the bulk of the children, and even the farthestmost families would be only a third of

<sup>1</sup> Strayer, George D., and Engelhardt, N. L., *New York Regional Plan*, vol. 7, p. 45.

<sup>2</sup> *Ibid.*



## HOUSING FOR THE MACHINE AGE

a mile away. Many times it will be feasible to provide more than one play space, bringing this facility still nearer its patrons. In single-family districts, where home yards take care of small tots, a public playfield is more especially needed for the baseball and other large-space games of older youngsters. Under the topic "Open Spaces," the recreational service will be discussed in detail.

Size is a factor in two other aspects of the model neighborhood community—the achievement of a distinctive residential quality, and the possession of a rich associational life. Since both these points can be more appropriately discussed in detail later on, only an assurance need be given here that the unit formula does satisfy the two requirements as to area and as to desirable population.

### BOUNDARIES

The unit should be bounded on all sides by arterial streets, sufficiently wide to facilitate its by-passing, instead of penetration, by through traffic.

The most important reason for wide highways as boundaries arises from their relation to street safety. The unit district is not too large, according to the opinion of an authoritative engineer,<sup>1</sup> to be treated as a partly closed cell in urban street systems, without doing violence to the highway requirements for general circulation.

With adequate express channels in the circumference of a unit, through traffic will have no excuse for invading its territory, and its own internal streets can fairly and deliberately be made inconvenient and forbidding for vehicles having no destination within the neighborhood confines. If any of the original boundaries of a unit district are not suited for through traffic, they should be widened by taking land, if necessary, from the unit area. Sometimes there will be temptation to use an existing park, a stream, or a railway as a unit boundary, in place of lining that side with a wide highway. It is not a safe thing to do, since the absence of a channel for through traffic on that side will generally force such traffic into one of the neighborhood's own internal streets.

Another value of wide and conspicuous boundaries is that they enable residents and public in general to see the limits of the com-

<sup>1</sup> New York Regional Plan, vol. 7, p. 52.

## THE NEIGHBORHOOD UNIT FORMULA

munity and visualize it as a distinct entity. Like a fence around a private lot, they heighten the motive for local improvement by defining the area of local responsibility: "Here neighborhood maintenance ends." Residential pride may also be stimulated by the erection of ornamental arches and architectural markers of various sorts.

### OPEN SPACES

A system of small parks and recreation spaces, planned to meet the needs of the particular neighborhood, should be provided.

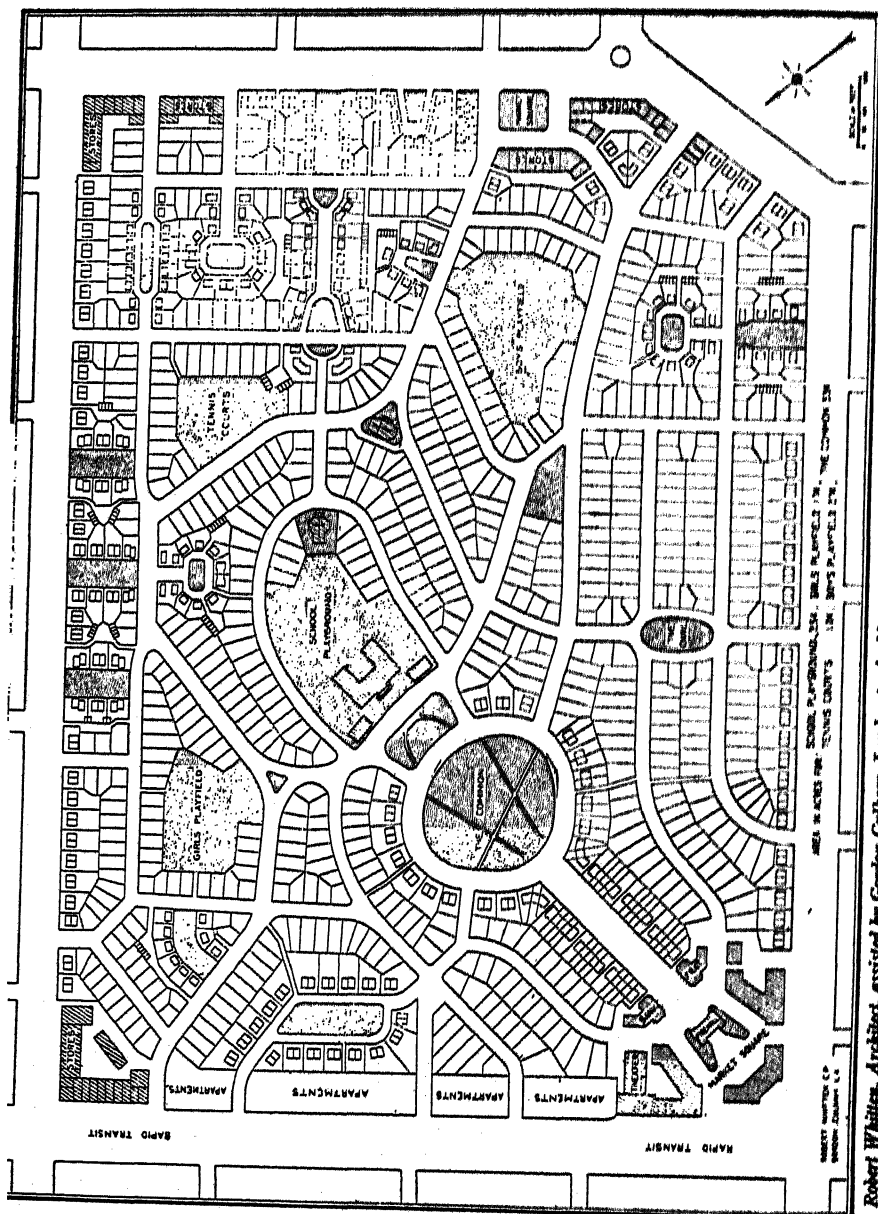
The large-scale advantage of unit planning shows up with special clearness in the ease with which it makes possible abundant provision for play close to the family dwelling. Having a large area to draw on, and a definite and numerous clientele to provide for, the economies and efficiency of quantity production are attainable in a high degree. A few feet taken off from the depth of a number of lots and put together in a playground that will serve all the owners produces a valuable community asset without appreciable loss to anyone.

Again, the custom-made planning—which is inherent in the unit scheme—makes it possible to avoid the wastes incidental to undifferentiated subdivision layouts. These are especially noticeable in the traditional rectangular street system, wherein two or three standard street widths are applied by a rule of thumb long before the mappers can know much about future traffic requirements. Under such circumstances it is not strange that many streets are found eventually to be of excessive width. In a unit project the function of each internal highway is determined at the time it is laid out and it can therefore be precisely adapted to its traffic load.

The layout of a 160-acre subdivision, accommodating 6,000 residents, developed in a study<sup>1</sup> of a district in the Borough of Queens, carried on by the late Robert Whitten, is shown on page 58. An examination of it will reveal that 10.6 (8.6 plus greens and circles

<sup>1</sup>Originally presented in *The Neighborhood Unit*, Monograph 1, New York Regional Plan, vol. 7, p. 36; and further discussed in *The Economics of Land Subdivision*, Part 3 of Monograph 3, p. 339 of the same volume. Its research was based upon a planning study made of an actual tract of land located in a large undivided area north of Jamaica in the Borough of Queens.

# HOUSING FOR THE MACHINE AGE



*Robert Whitten, Architect, assisted by Gordon Calhoun, Landscape Architect*

**A 160-ACRE NEIGHBORHOOD UNIT SUBDIVISION**  
 Liberal recreation spaces gained through on week-end use.

## THE NEIGHBORHOOD UNIT FORMULA

2.0) per cent of its area is devoted to small parks, playgrounds, and other open spaces, all of which was gained through unit advantages over the standard gridiron system. Three-quarters of the gain came from savings in street area and the remainder from shallower lots. Because of the narrower streets it was calculated that the street improvements for this neighborhood plan would cost some \$400,000 less than they would in a standard layout of the same size and character.

What part of a neighborhood unit plot should be set aside for small parks and playgrounds? Obviously no hard and fast rule can be laid down. In the Whitten study—a single-family district—the recreation areas covered 17 acres, or 10.6 per cent of the total area. That suggests a flat 10 per cent as a good figure to aim at in open or suburban unit subdivisions. Oftentimes it should be possible to exceed it. The kinds of uses which may be made of 16 acres—10 per cent of a quarter-section—are indicated in the following table:

RECREATION AND PARK SPACES IN A SINGLE-FAMILY  
NEIGHBORHOOD UNIT OF 160 ACRES

Kind of area	Acres
School grounds—building site and playgrounds for the younger children	3.00
Playfields—one for boys and another for girls	5.50
Tennis courts—12 courts	2.25
Common or civic square	2.25
Small parks—planted ovals and circles	3.00
Total	16.00

Setting up a standard recreational allotment for apartment house units is a more difficult matter. Naturally these developments will vary widely in density and total area. The arrangement of structures and highways—governed by uncontrollable conditions surrounding the unit—will in certain instances permit larger play spaces than will be possible in others. Again it is not easy to draw a line between “space around the building” and a landscaped court which serves, or should serve, the purposes of a park.

The social objective to be kept in mind is plain. The practice of allowing city land-owners to load their premises so heavily with apartment houses that no space is left on the plots for the normal physical and moral development of tenants' children should be restricted. The neighborhood unit scheme furnishes a method

## HOUSING FOR THE MACHINE AGE

whereby this evil can be avoided in future large multi-family developments with a minimum cost to property owners and a maximum benefit to society.

The guiding principle then is the need of the children and youths who are to live in these apartment house unit districts. Ordinarily, the larger the population the larger the recreation allotment, is the rule that should be applied. There is, however, a minimum allowance, and that has been passed when the space is so small that there is insufficient room for sports like baseball and football. Whether a neighborhood community covers 40, 80, or 160 acres, its youths will be much alike and have the same developmental needs. These large-space sports mean as much to the training of growing boys and youths in factories and offices as they do to those in high schools and colleges. Unless these facilities are accessible for the margin of work days and on holidays, large portions of the classes who most need them will never enjoy them. The large playfields in the big central and suburban parks, provided in most cities, are crowded on holidays and too far away for use at the end of a work day.

On the following page a distribution of recreation spaces is presented which should be regarded as the minimum provision in an apartment house unit that is planned to meet the outdoor needs of its children and youths. It is too liberal for a downtown slum area.<sup>1</sup>

It is probable, however, that even the above minimum provision will be found too spacious to include in a unit designed for the reconstruction of a central slum district in the larger cities. But there is a housing program which would meet this situation.

<sup>1</sup> How the first three apartment house layouts presented in Chapter V measure up to this standard will be of interest to planners.

<i>Plan</i>	<i>Population</i>	<i>Acres</i>	<i>Play acres</i>	<i>See page</i>
World's Fair District, Plan B.....	9,000	80	10.1	231
Winfield, Plan E.....	5,000	41.47	8.37	234
Winfield, Plan D.....	6,000	41.47	9.15	234

The Winfield studies do not quite meet the standard, but—as will be seen—they are recommended for a more congested situation than the table covers. They illustrate, however, the area that can be gained through reductions in street coverage and the double use of land—making recreational spaces serve also as openings for air, sunshine, and vistas. In Plan B all the recreation space but the two-acre school site was gained through savings in land originally mapped for streets.

## THE NEIGHBORHOOD UNIT FORMULA

Rebuild these costly areas in, say, 20- or 30-acre neighborhood units. There is no physical reason why such developments should not contain spacious lawns, shrubbery, pools, handball courts, and gymnasiums. Through the use of such common facilities residents would become rapidly acquainted. People who could afford these apartments would be well able to enter into co-operative schemes for the recreational life of their boys and girls. For example, such a group would have little difficulty in arranging for a week-end, all-year rural camp for their children, to which every Friday afternoon they would be transported by bus.

### RECREATION SPACES FOR AN APARTMENT HOUSE UNIT

Kind of use	Acres
Small children's playground, next to school	1
Older children's playground, next to school	2
Combined baseball and football field (300 feet by 435.6 feet)	3
Hockey field for girls (200 feet by 300 feet)	1 $\frac{3}{4}$
Site of school building, landscaped area and grandstand	2 $\frac{3}{4}$
Total	10

Children of the higher income groups who enjoy a home in the country and one in the city, attend high or preparatory school, college, or university, and thus have superior advantages, do not need large recreational areas near their homes. They belong manifestly to the class for whom the downtown apartment units should be planned and constructed. For families that have less access to rural outdoor life, fuller recreational provision should exist within the neighborhood of their homes.

In apartment house units, landscaped courts may also serve certain play purposes. There may be lawns on which toddlers may romp and sand boxes where they may dig—under the eyes of nurses or mothers. Active or noisy play, however, in an enclosed court is generally objectionable. The chief enjoyment which courts can contribute is the delight to the senses that comes from lawn, shrubbery, and flowers. Is there any standard as to the amount which should be required in multi-family units?

A certain minimum requirement is set up by zoning ordinances. This usually is for the purpose of assuring to tenants adequate air and light, and belongs in a sanitary rather than an esthetic category. If an apartment house unit could not achieve more openness

## HOUSING FOR THE MACHINE AGE

than municipal zoning ordinarily secures, it should be considered lacking in one of its chief virtues.

A standard of light which has been suggested by city planning authorities and which does automatically secure considerable openness requires that each structure be separated from its neighbor by a distance equal to its height. When this is observed, each ground-floor window commands a view of at least 45 degrees of sky. While this standard should never be violated, it ought generally, in a unit project, to be exceeded. Within the large frame of a school district unit, it should be easy to stagger the dwellings, or arrange them in echelon or step form, thereby securing attractive vistas in great abundance. As an example, note how happily this effect has been achieved in Plan B, known as the Mathews Plan, for the World's Fair district.<sup>1</sup>

Of course, the unit plan is supposed to provide only for the strictly neighborhood needs. These do not include golf links, sea beaches, zoological museums, woodland picnicking grounds, or any of the other opportunities usually associated with the large city or suburban park.

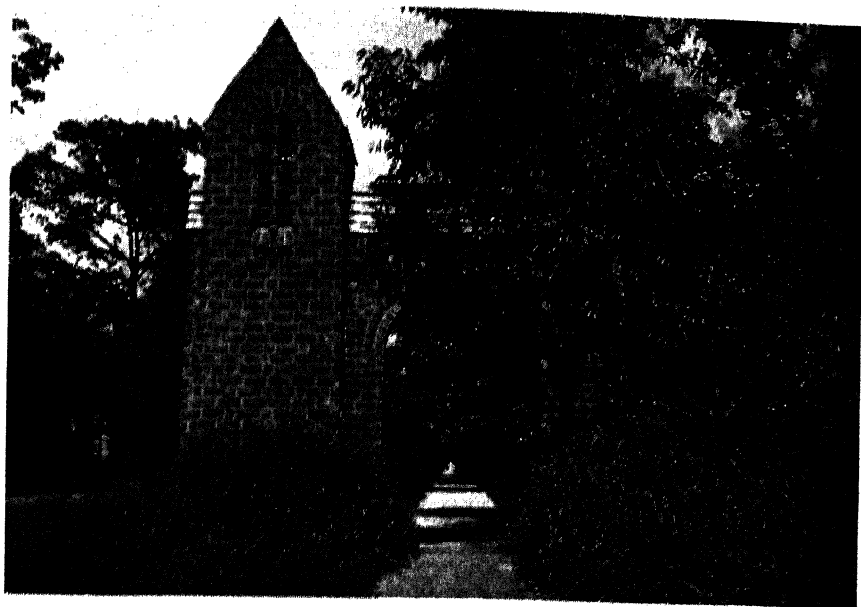
In a word, then, the unit scheme sets up the principle that every urban neighborhood catering to families should contain within its own boundaries facilities for a normal recreational life, shaped to fit local conditions. Furthermore, if play spaces can be incorporated in the neighborhood plan while it is being formed, they will not only be much more efficient but their cost will be hardly noticeable.

### INSTITUTION SITES

Sites for the school and other institutions having service spheres coinciding with the limits of the unit should be suitably grouped about a central point, or common.

We now come to the organization of the neighborhood community center. Its structural components are obvious. First, is the elementary school. Next is a branch of the public library, unless as in some progressive cities this is included in the school plant. In well-to-do neighborhoods there might be a separate community building for social, club, and indoor recreational activities. There

<sup>1</sup> For description of this plan see p. 122, also Appendix B, p. 231.



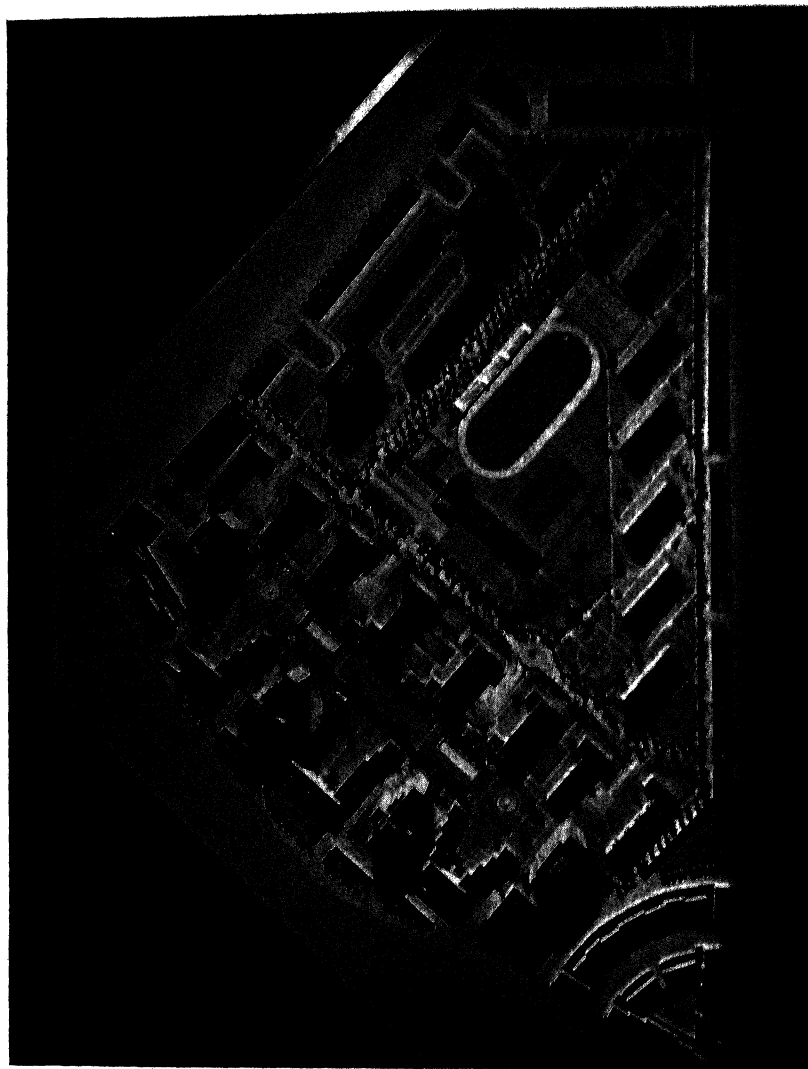
An Architectural Marker



An Arterial Highway

TWO BOUNDARIES IN FOREST HILLS GARDENS





*Edward James Maloney, Architect*

*Place by Robert L. Garrison*

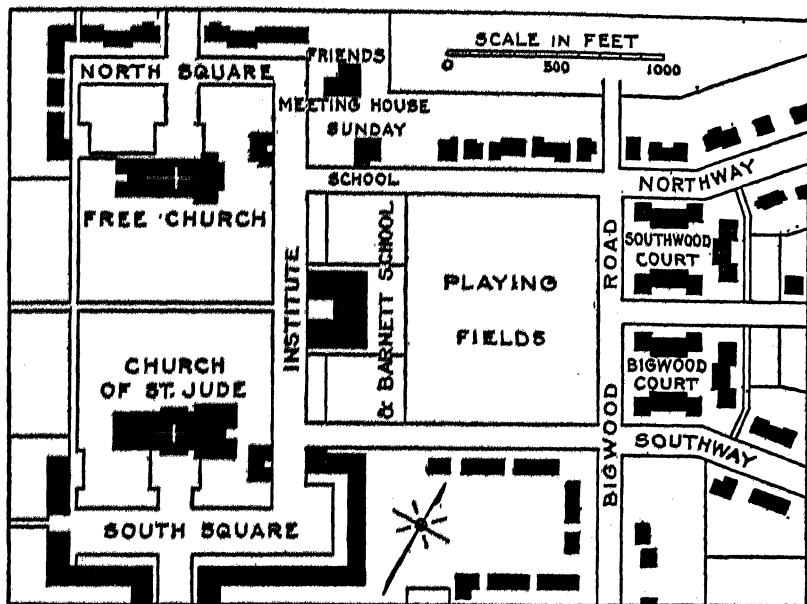
*Made by WPA Federal Art Project*

# PLAN B—SUGGESTED FOR AN AREA NEAR SITE OF NEW YORK WORLD'S FAIR, 1939

Recreation area accessible but separated from dwellings. See frontispiece and room plan.

## THE NEIGHBORHOOD UNIT FORMULA

is no practical reason, however, why this structure should not be combined with the school. It would usually possess an auditorium, equipped for stage productions; a gymnasium; a pool; and some smaller meeting-rooms. Located adjacent to the school, the pupils could make use of the auditorium and gymnasium without interfering very much with the adult and end-of-the-day, or holiday, occasions.



CENTRAL SQUARE, HAMPSTEAD GARDEN SUBURB, ENGLAND

Reproduced from New York Regional Plan, volume 7

The difficulties encountered in a combined use of buildings are mainly administrative. A community clubhouse, in these modern days, must permit smoking, keep open until late hours, and altogether encourage an atmosphere of gaiety and freedom that is quite foreign to the traditional school. If local residents took an active part in the management of both institutions, however, it should be possible to make a practical co-operative arrangement. This might be worked out most satisfactorily with a community building

## HOUSING FOR THE MACHINE AGE

equipped and administered primarily for its social and recreational purposes, but so arranged that pupils, entering through covered passageways, could make a scheduled use of the auditorium and gymnasium. Removing the clubhouse atmosphere would be simply a janitorial task. Instructors could bring the pedagogical atmosphere with them.

A place in the community center area should be reserved for a church, provided it is known in advance that its parish is to be generally conterminous with the neighborhood. Community congregations in which several denominations have joined for carrying on worship and other religious activities do exist, and it is obvious that such bodies would find the integrated neighborhood a congenial environment. A plot reserved for a community church could be used for residences or some other neighborhood institution if circumstances later prevented the carrying out of the original plan. A church whose members will come largely from outside the neighborhood should be placed at a street junction in the periphery of the unit. The weddings, funerals, christenings, and other ceremonies which take place in churches generally crowd the vicinity with motor cars. A neighborhood should not begrudge the street space required for the occasional ceremonies of its own residents. However, in selecting the components of the neighborhood community care can well be taken to avoid assigning central or interior locations to any institution that frequently draws together large crowds of strangers.

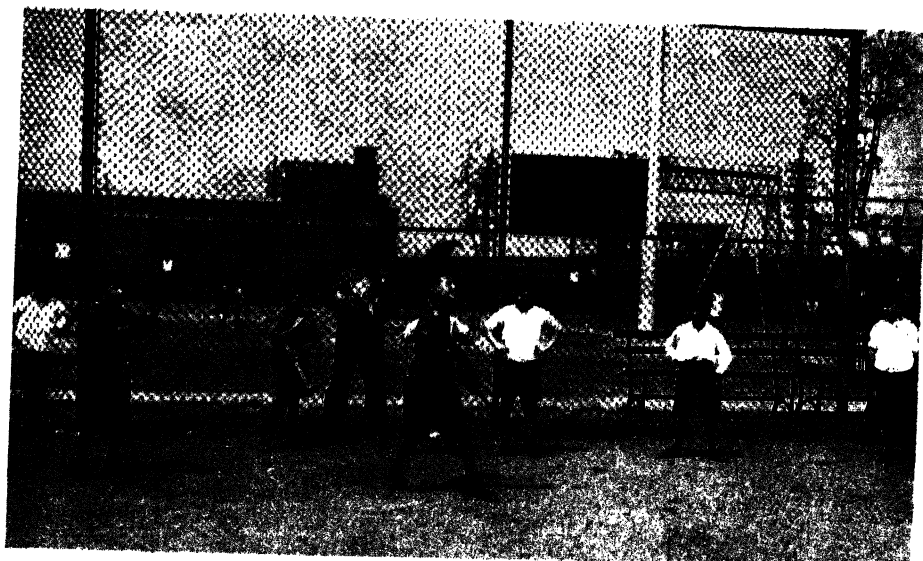
For the same reason, and for its own intrinsic advantage, a commercial motion picture house, a fraternal lodge, or any other institution whose supporting population is ordinarily larger than that of a school-district neighborhood, should be located, not within a unit, but at the point where a cluster of neighborhoods comes together, generally a business center.

If school, library, community house, and church can be grouped around a common in the center of the unit, that will be the most convenient arrangement for the residents. Such a disposition will also make possible an architectural effect of great civic value. Fronting upon a square, the facade of each structure will be viewed from a greater perspective, and the motive for endowing it with a dignified design will be enhanced. As one of a group, there will



*Courtesy of City Housing Corporation*

Children of this age-group should be able to reach a playground within one-quarter mile of home, without traffic risks



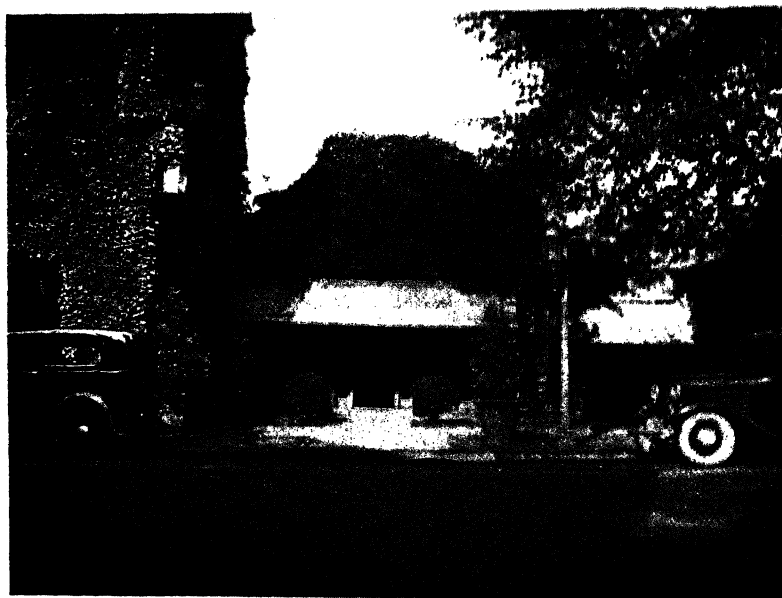
*Courtesy of City Housing Corporation*

Baseball, an American character-builder, is seldom provided for in developments now being built

VIEWS IN THE THREE-ACRE PLAYGROUND OF SUNNYSIDE GARDENS,  
A PLANNED NEIGHBORHOOD COMMUNITY IN THE BOROUGH OF  
QUEENS, NEW YORK CITY



Church and community house which would fit into a neighborhood civic center



Flower shop on edge of business district, which softens contact with residential section

VIEWS IN FOREST HILLS GARDENS

## THE NEIGHBORHOOD UNIT FORMULA

also be reason to fit it into an attractive composition. Thus the square itself will be invested with a meaning, a symbolism, more significant than the mere sum of its parts. It will be a visible sign of unity. Obviously this effect, if it is to be nicely wrought, will have to be worked out by an architect or planner possessed of skill and taste. When the unit is constructed under a single comprehensive management, there should be no difficulty in securing adequate talent for this purpose.

The square itself will be an appropriate location for a flagpole, a memorial monument, a bandstand, or an ornamental fountain. In the common life of the neighborhood it will function as the place of local celebrations. Here, on Independence Day, the Flag will be raised, the Declaration of Independence be recited, and the citizenry urged to patriotic deeds by eloquent orators.

### LOCAL SHOPS

One or more shopping districts, adequate for the population to be served, should be laid out in the circumference of the unit, preferably at traffic junctions and adjacent to similar districts of adjoining neighborhoods.

Under this head we approach a municipal problem of great importance—the zoning of business and residential districts. That the present methods have not protected residential character to the degree that was expected is admitted by even the best friends of zoning. An explanation for this condition is offered by the Saint Louis City Plan Commission in its report, already mentioned.<sup>1</sup>

When zoning was first undertaken, there were no scientific data as to the relative amount of land needed for various types of urban land use. Lacking such data and standards, it was but natural that the early zoning was unscientific and, consequently, failed to exert a beneficial influence in stabilizing population and in moulding the form and character of the city.

Residential property pays more taxes than all other classes of property combined, but zoning has failed to protect this huge investment. More than one-third of all residence property in Saint Louis is zoned for a lower classification, such as commerce or industry.

Commercial areas are ninety-four per cent overzoned.

<sup>1</sup> See p. 22.

## HOUSING FOR THE MACHINE AGE

Further evidence of the same tendency is given by Edward M. Bassett—the “father of zoning”—in his recent authoritative work entitled *Zoning*:

It cannot be denied that municipalities of all sorts, especially towns, have been prone to place too much street frontage in business districts. In some towns one hundred times as much street frontage has been placed in business districts as is likely to be used for business purposes in two generations.<sup>1</sup>

In view of the fact that the protection of residential quality from the depressing effect of nearby business was one of the foremost reasons for the institution of zoning, the above evidences of failure would at first sight seem highly discouraging. Such an attitude, however, would overlook the very substantial improvement in man's control of his environment which zoning has wrought. There are thousands of fine dwelling areas whose stability has been greatly strengthened by zoning. Most important of all is the fundamental principle that it has firmly established, viz., that the uses of property are matters of public concern, so vital that the state is justified in using its police power in a reasonable regulation of them. The device is sound. It is the method of applying it wherein improvement is needed.

The difficulties that surrounded zoning when it was first launched were great. Since zoning was a public regulative measure, there was a natural necessity, and desirability, to bring the whole city within its scope. Zoners began with the central districts and worked toward the periphery. They had no fixed pattern and had they possessed one they could not have applied it to the huge structural improvements of the downtown sections of our complicated commercial cities. An area that was dominated by dwellings they zoned as a residential district even though it contained some stores and factories. Non-residential structures could remain but no new ones could be erected. In a similar way they laid down business and “unrestricted” districts, factories or any type of use being permitted under the latter category. It was a workable method. It is difficult to see how, under the circumstances, a better one to begin with could have been devised.

<sup>1</sup> *Zoning: The Laws, Administration, and Court Decisions during the First Twenty Years.* Russell Sage Foundation, New York, 1936, p. 83.

## THE NEIGHBORHOOD UNIT FORMULA

In unbuilt areas, the task of the zoners was still harder. They had no existing structures to serve as a guide. It was plain that low land and land along railways or streams was suitable for industrial purposes, and that frontage on main highways was desirable for stores. Drawing the lines which determined the precise limits of those use-districts was not easy, however, and yet they were very important, since they also defined the residential zones.

The characteristics of business and industrial plots being so much plainer, and those uses being regarded economically as so much more important, it is not strange that in the allotment of land they were taken care of first and residential use given what remained. Furthermore, the central areas, where zoners first worked, were so largely devoted to business and industry that the experience with them yielded exaggerated notions as to the requirements of those uses. It was natural that the importance of these sections should govern the treatment of unimproved sections. May this not explain why the method has not more satisfactorily protected the character of residential districts?

When a zoner lays out use-districts in an unimproved area according to a zoning ordinance, he is allotting plots to specific functions. He is engaged in city planning. He must have not only a basis for determining what *kind* of land shall be devoted to a particular function, but also a notion as to how *much* of each kind of functioning is required per unit of population. Where now is he to seek these standards? Shall he take them from the wild, uncontrolled urban growth which zoning found when it came into existence? If not there, where or how shall he acquire the necessary standards?

It is here that the neighborhood unit scheme comes forward with a suggestion. Its offering does not directly deal with industrial districts or existing business or residential districts, except where they need rebuilding for the use of dwellings. Its field is that of relating retail business to new residential districts. Its underlying principle is simple. The logical way to effect this relation is to break the new area up into more or less uniform divisions and then apportion to each part the number and kinds of stores which will be needed by the residents for whom that part will be planned.

The basis suggested for making such divisions is the neighbor-



## HOUSING FOR THE MACHINE AGE

hood unit, that is, a public school district of from 3,000 to 10,000 people. The area occupied by the dwellings of such a population need not exceed a half-mile radius, which, city planners hold, is the maximum distance families should have to travel to reach a retail store. Also, within this same unit the dwellings—as has been stated—are conveniently located as respects not only the school but playgrounds and other neighborhood institutions. The unit is self-contained except as to places of work of its inhabitants and those services which ordinarily reach a city-wide clientele.

Coming now to the main detail—what is the number of retail stores which should be provided for a given population? Obviously no city planner, however proficient, has the final answer to this question. It is a problem that does not permit exact determination. Several studies have, however, been carried on which throw light upon the matter. They are discussed in Appendix A on page 225. Here it is sufficient to say that considering their conclusions, they have led the writer to the belief that *one* store per 100 of population to be accommodated is a fair working rule.

The truth is that we do not yet possess enough experience or data upon which to base a scientific determination. Consider then how much better off in this respect we should be if the planning and construction of neighborhood units were to become a recognized practice. In each case there would be somewhat similar conditions. The unit developments would have easily discovered characteristics, and their business data would be capable of more accurate interpretations. Furthermore such data, continually reinforced by new experience, would be more readily available for neighborhood planning because there would then be an agency, charged with the function of developing and publishing this scientific knowledge. The government would be called upon to participate in the shaping and supervision of the unit developments (a matter to be discussed on pages 94 and 138) and public interest would require it to be concerned—as in principle it is now—in the business zoning of the neighborhood districts.

As to location of the unit business zone, several considerations demand a new principle. Villages, towns, and cities uniformly have business at the center. They grow up around commercial and industrial activities. The neighborhood contemplated by the unit

## THE NEIGHBORHOOD UNIT FORMULA

scheme, however, is primarily a residential district and its workers go daily to occupations in other parts of the city, mainly downtown districts. The reasons for not locating its business zone in the center of the unit pertain to (1) the welfare of the community, and (2) the intrinsic interests of business.

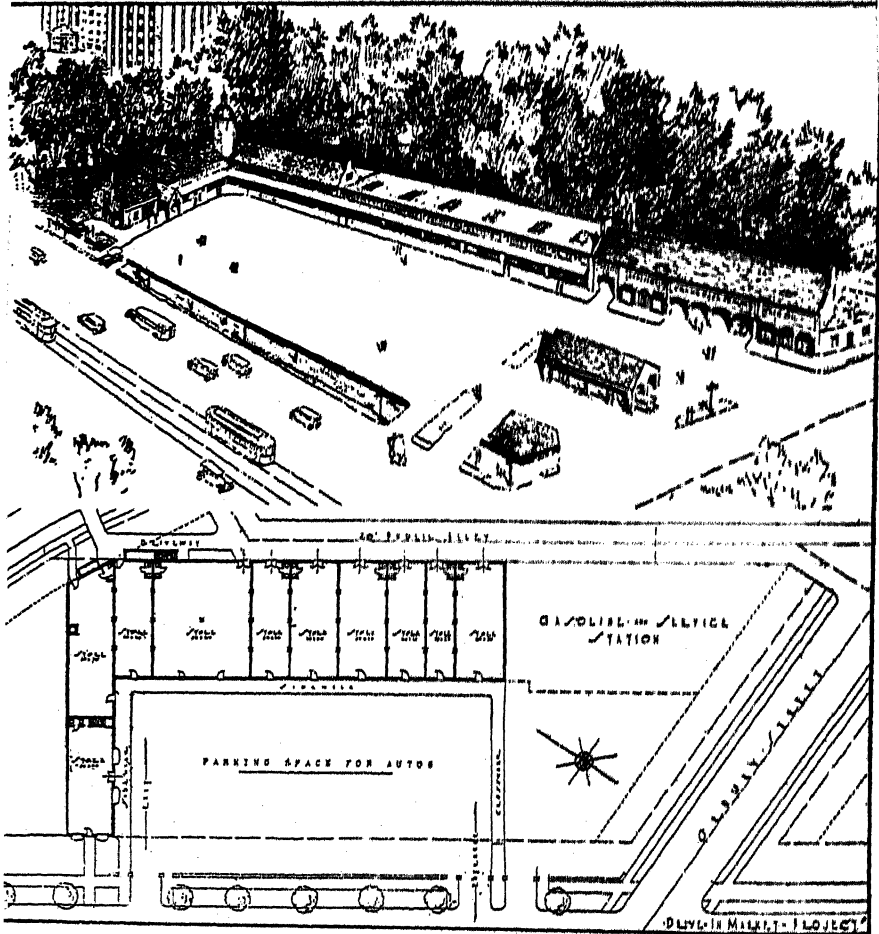
In the first place, the unit area is so compact that a collection of stores anywhere in its interior would extend their contact with dwellings and their blemish upon residential quality. Again, the supplying of goods for these stores would bring numerous trucks across the paths of boys and girls going to school and playfields, as well as occasion noise and traffic in an area where quiet and tranquillity are desirable. Furthermore, the unit is too small to accommodate both a civic and a shopping group in its central region.

To understand what constitutes a good location for a store we must think about business practices. In selecting a site for a new chain store, the management sends out experts to make counts of the number of persons passing points which are under consideration. Those locations showing the highest rates are, other conditions being equal, the most desirable. Accessibility to population is a prime requisite in a store site.

It is one of the advantages of the unit scheme that it makes good business locations more definite and more easily found. Each neighborhood, being a concentration of families, whose workers pass daily through one, two, or possibly three main portals, the canalization of traffic is automatic. These portals are naturally located at the transit stations, or traffic junctions, in the main highways which bound the unit. Despite the telephone, the facile delivery services, and the automobile, residents frequently find it convenient to stop at a local store on their way to or back from "town." It is that convenience and the courses of the traffic streams which determine the neighborhood portals as the proper locations for local shopping districts.

Another advantage in having business in the periphery of a unit is that frequently it is only across the street from a retail district in an adjacent neighborhood. Sometimes four such districts, in the corners of their units, will be found in a cluster. Thus residents of those four neighborhoods will all enjoy a wider range of shopping opportunity. Such a collocation will not displease shop proprietors.

## HOUSING FOR THE MACHINE AGE



### DRIVE-IN-MARKET, WASHINGTON, D. C.

Parking space is required in urban neighborhood shopping districts  
(Project of Shannon and Luchs Company, reproduced from Real Estate Record,  
February 5, 1938)

## THE NEIGHBORHOOD UNIT FORMULA

Aggregations of similar lines of business take place spontaneously in a downtown district, each shopkeeper seeking to locate where customers interested in his line are most likely to be found. Even the disadvantage of greater competition does not counteract this commercial tendency.

The straddling of a main highway with business activity does, however, create a traffic problem. Shoppers on foot will not be so much bothered, since they will stream across the street anyway, and often with the protection of a traffic light. But motorists, not wishing to stop at that point, will complain. This difficulty will be still more vexatious in the case of a regional highway 200 feet wide. Even pedestrians would not like that condition, and a frequent stopping of the traffic would greatly reduce the value of an express channel.

The best solution of this difficulty would seem to be that of the bridge or the underpass. In a situation where the main problem would be to enable pedestrians—not vehicles—to get freely across a main highway, it might be possible to provide an underpass, accessible by stairs or a ramp, on each side of a street. The expense of this construction could be recouped, and funds for maintenance be provided, through the erection of underground stores, fronting on the underpass, thus creating a shopping arcade and extending the business facilities of the district.

Where it was desirable to provide a channel for vehicles across a main highway, in a business area, the same principle could be applied. Either a bridge or an underpass could be lined on both sides with stores. Of course, a larger layout and more extensive planning would be involved—especially in the case of an overpass—but there seems little question but that both shopping and traffic convenience could be served in this way. The new store sites thus created “out of the air”—literally *in* the air—would bring a revenue that would take care of both construction and maintenance. An overpass authority, the legal body similar to a bridge or a housing authority, could be set up to handle a number of such projects. The insertion of a 200-foot arterial highway in built-up sections does, after all, bring up problems for the neighborhoods which line them. Perhaps business opportunities will help us to cross them.

As to the shape of neighborhood business districts—that is a



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technical matter and planners are referred to the studies made by Clarence Stein, Catherine Bauer and others, descriptions of which will be found in Appendix A.<sup>1</sup> Several principles, however, are apparent. Stores should be bunched rather than strung along a street. Parking space and rear service entrances should be provided. Frontage and depth of stores will vary according to kinds of merchandise or service. Chain-store experience on these points will be useful in planning. Special architectural consideration should be given to the business structure at the point where stores stop and dwellings begin. A flower shop, or store of equal attractiveness, at the edge of the district will soften the harshness of this boundary.

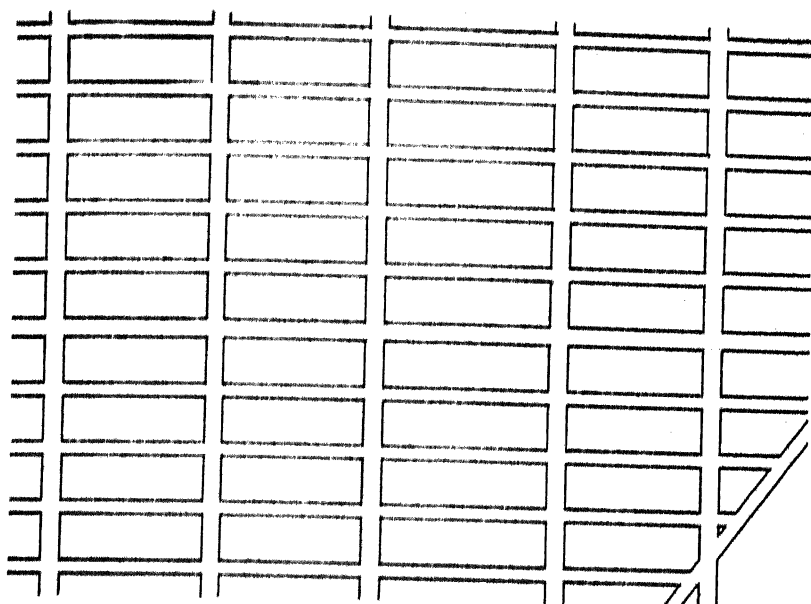
In the unit scheme, a business district is a custom-made product. To fashion shops for various purposes and provide them with parking spaces and service lanes it is clear that the planner must not be bound by use-zones which follow the traditional street and block lines. And, finally, the value of a business district is created by the purchasing capacity of its residents. A developer in a position to build both stores and dwellings has a broader basis for meeting price competition and making profits. Comprehensive developments are promoted by the unit scheme.

### INTERNAL STREET SYSTEM

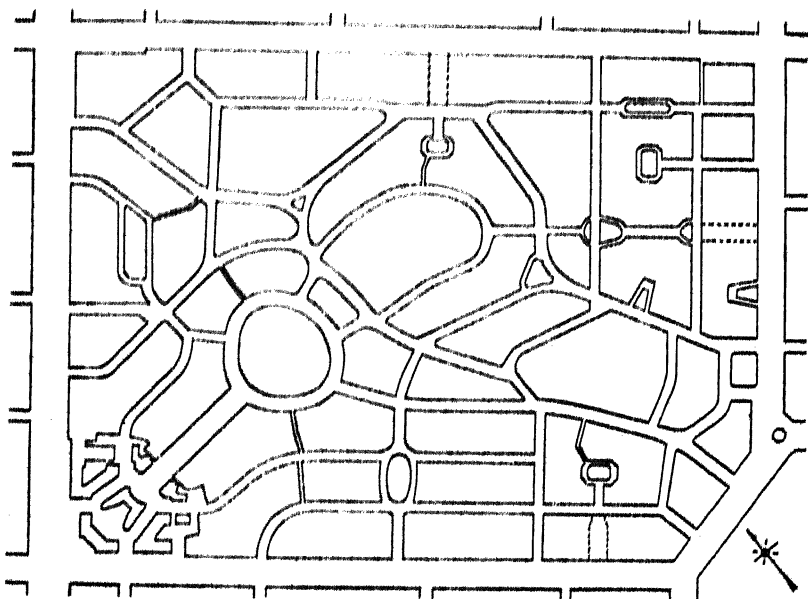
The unit should be provided with a special street system, each highway being proportioned to its probable traffic load, and the street net as a whole being designed to facilitate circulation within the unit and to discourage its use by through traffic.

When a residential district is laid out on a gridiron street pattern there are no points, within it or on its border, in the reaching of which some residents would not have to travel two sides of a triangle. Through the unit scheme this inconvenience can be largely avoided. Before internal streets are planned, the principal destinations of residents in their daily movements will be definitely known. These will be the portals in the circumference where the traffic junctions and business districts are located, and the civic center where the school is placed. Channels for more or less direct movement toward these main destinations can be laid out and their

<sup>1</sup> See p. 226.



Many streets wider than needed. Majority of residents not afforded direct route to daily destinations



Each highway adapted to its particular purpose

# **GRIDIRON AND SPECIALIZED STREET SYSTEMS**

Reproduced from New York Regional Plan, volume 7

## HOUSING FOR THE MACHINE AGE

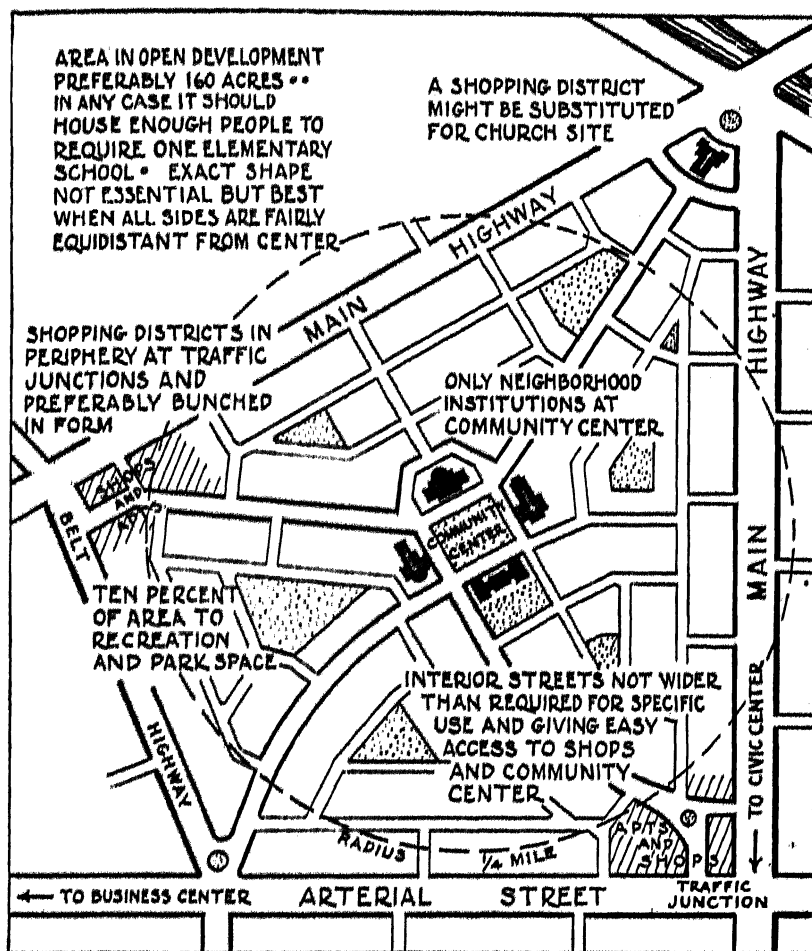
capacities can be approximately adjusted to the volume of the streams they will carry.

In the pattern that will result from this process, there will probably be a combination of both radials and circumferentials. There may also be culs-de-sac. Obviously, the contours of the terrain will have to be considered, as well as the other factors of vista, economical lot subdivision, and street utilities. But there should be no necessity for making these interior streets continuous with similar streets in the adjacent neighborhood, or for even requiring their openings on the boundary highway to correspond with openings across the highway. Such a requirement would not only tend to invite through traffic into the unit but also rob it of its independence. In every way the principle should be observed that internal streets are to serve exclusively the purposes of residents of a particular district, and all of the planning and engineering ingenuity should be directed to that end. Since boundary streets are made extra wide to facilitate the by-passing of a unit by through traffic, a planner can feel free to shut traffic out from the interior, so far as his means permit.

The street pattern produced by this method may seem like a maze to stranger-visitors and department-store delivery trucks, but this difficulty can be met by posting maps of the neighborhood, under weatherproof frames, in police booths and at the portals of the district.

If in the process of highway specialization we adapt parkways and boulevards to the needs of vehicles, why should we not fit neighborhood streets to the special requirements of pedestrians? Every thoughtful person, taking his car out of the garage, moves cautiously while in the vicinity of his neighbors. In a residential district, he is always near somebody's neighbors. Why should he object to driving slowly for the few minutes required to reach the boundary highway where he will be able to speed? Suppose the neighborhood streets do seem like a labyrinth, and some of them are so narrow that, with cars parked at the curb, passage for other cars is a slow process—are not the safety and tranquillity thus obtained worth more than the convenience that is sacrificed? If we are going to do everything possible to reduce the present frightful casualty rate from vehicular accidents, we should apply a preven-

## THE NEIGHBORHOOD UNIT FORMULA



### NEIGHBORHOOD UNIT PRINCIPLES

Reproduced from New York Regional Plan, volume 7

tive principle of this sort to the planning of family-life residential districts.

Finally, we come to the matter of residential character. From what has been said it is plain that the unit scheme will not, of itself, confer upon a development the quality that comes from costliness of construction or wealth of landscaping. On the other hand, it



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enables a modest project to secure an amenity from parks and planted recreation spaces that is not ordinarily possessed by the average commercial development.

One important merit of unit planning consists in its ability to save a residential district from the miscellaneousness that characterizes most urban neighborhoods. When a tract is subdivided into many uniform lots, sold to whomsoever will buy, and built up in accordance with the tastes and means of different owners, it is not likely to have a character that is definite or outstanding.

By reason of its wide boundaries and special street pattern, a unit is almost certain to stand out geographically as a distinct community. It will probably have a special name. But appearance is not the only basis of distinction. A district can be distinguished because of the affection which its residents have for it. When it has a complete equipment for the vicinity needs of its families; when the public services are nicely adapted to population requirements and all its component parts are integrated by a comprehensive plan—then you have a neighborhood community that is bound to be marked because of the esteem in which it is held by its residents.

If we will enable powerful special corporations to construct family homes, we can make certain that there will be not only a large supply of reasonably priced *new* ones, but that each house will be built into its own neighborhood—an environment that will be right because it also will be planned and constructed, along with its dwellings, to specifications based upon family needs.

### EARLY REACTIONS TO THE UNIT SCHEME

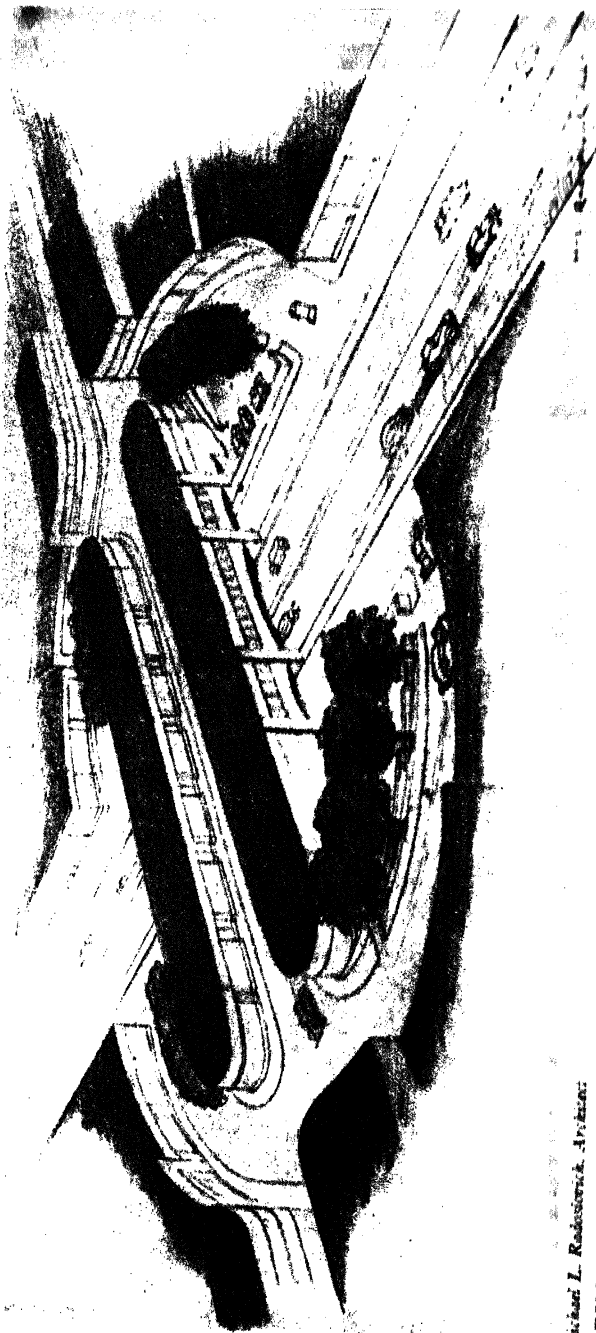
It will have become apparent to the reader that the scheme under discussion cannot be carried out without the enactment of new laws. One of the main purposes of this publication is to stimulate the development of a public opinion that will back such legislation. For that purpose expressions of the favorable attitudes of prominent individuals and bodies in the planning field who have examined the scheme are important. The writer presents these expressions without apologies, since the formulation of the plan resulted in his mind naturally from the accidental impact of two circumstances—(1) that of a long professional study of local community



BRIDGE OVER RAILWAY AT KEW GARDENS, NEW YORK



STORES ON THE KEW GARDENS BRIDGE



*Michael L. Radetsky, Architect*

DESIGN FOR A SELF-LIQUIDATING OVERPASS CARRYING A BUSINESS DISTRICT OVER A 200-FOOT BOULEVARD

## THE NEIGHBORHOOD UNIT FORMULA

organization, and (2) that of living in an exceptional residential development. Fuller reference to these circumstances will be found in Chapter IX on the history and social significance of the unit idea.

The earliest notable reaction to the scheme (the New York Regional Plan volume 7 was published in 1929) was that of the President's Conference on Home Building and Home Ownership, which President Hoover called together on December 2, 1931, in Washington. The body was divided into many committees of which only a fraction—something like one-fourth—was in any way concerned with the planning or layout of the *environment* of the home. The following committees either explicitly endorsed the unit scheme in their final reports or made favorable mention of it: Subdivision Layout, City Planning and Zoning, Legislation and Administration, Standards and Objectives, Types of Dwellings, Housing and the Community, Blighted Areas and Slums, and Research.

Many of the statements made about the unit scheme contained reinforcing arguments. Thus the Committee on Subdivision Layout, among its numerous references, made this significant point:

In the complexities of urban life only the smallest villages retain the character of a single neighborhood. Every town and city requires neighborhood planning and organization with all that this implies, and the subdivider is in a position to capitalize this need. If he designs and develops his subdivision as a distinct neighborhood unit, or as part of such a unit, the subdivision profits in drawing power by the recognized name of the neighborhood and by the fact that it acquires a definite identity.<sup>1</sup>

Additional arguments were also brought forward by the Committee on City Planning and Zoning. In a section headed "The Neighborhood Unit" it reported as follows:

The neighborhood is vitally important. The individual unit may be good, of good design and construction, properly located upon an adequate lot and oriented to the sun, but in an unsuitable neighborhood it would be a bad investment. The importance of the neighborhood is a vital question in city planning. The stabilization of the neighborhood through planning has the effect of stabilizing the individual home.

Permanence and stability are most essential in maintaining good homes

<sup>1</sup> Gries, John M., and Ford, James, editors, *Planning for Residential Districts. The President's Conference on Home Building and Home Ownership*, Washington, 1932, vol. 1, p. 58.

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and home neighborhoods. It is necessary, therefore, as a part of city planning, to encourage in all ways the design and development of each neighborhood so that it shall be a self-contained unit in the pattern of the city. This has come to be known as the neighborhood unit. . . .

Loyalty to a community of comprehensible size, something between the family and the great metropolitan city, may be fostered as an appropriate introduction to training in citizenship. . . .

These neighborhood units, if adapted to the thoroughfare plan and to the general zoning scheme of a city, may be made to offer those who live in them adequate light, air, and open spaces, with comparative peace from the noise and dust of heavy through traffic arteries. The health, safety and morals of people living in such neighborhood units can be safeguarded as they can *not* be protected in overcrowded areas unprovided with proper facilities, or in poorly planned units too large or too small to include convenient location of needed services.<sup>1</sup>

Indirect recognition of the scheme by a body of architects is contained in the following item clipped from the New York Times of July 30, 1935:

### NEW "TECNIC" URGED FOR CITY PLANNING ARCHITECTS WOULD HAVE BOARD TO CO-ORDINATE NEIGHBORHOOD AND COMBAT BLIGHT

A new technique of city planning is needed to eliminate colossal losses, assure their avoidance in the future and promote public health and opportunity for civic design, the annual report of the committee on civic design of the New York Chapter of the American Institute of Architects declares. The report, issued yesterday, urges appointment of a "strong and fearless city planning board with adequate power and technical ability to actually plan New York."

Other recommendations call for the neighborhood instead of the individual building as the minimum unit of construction and operation, a master city plan to co-ordinate the neighborhood units, a local street plan related to the community as a whole, "adequate" open spaces and distribution of homes, industry and recreational spaces on the basis of "actual human needs" and the probable future growth of population. . . . Clarence S. Stein, former chairman of the State Commission of Housing and Regional Planning, heads the architects' committee.

The need for a cellular unit in city building was stressed by Tracy B. Augur, assistant director of land planning, Tennessee Valley

<sup>1</sup> *Ibid.*, pp. 6, 7.

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Authority, in a paper<sup>1</sup> presented October 17, 1935, in Washington before a Joint National Housing Conference. In it Mr. Augur said:

What does a wholesome community structure look like, and how does one lay out a housing site to approximate it? Two notable contributors to housing literature, Sir Ebenezer Howard and Clarence Perry, give us the first lead. Before we start thinking of site design at all we must begin with a unit of urban life that is capable of maintaining itself, that has the internal strength to defend itself against whatever adverse pressure its surroundings may exert. . . . Howard set up the Garden City as a type of metropolitan unit that could resist the usual processes of annexation and submergence in the central city, that could survive as a well-rounded healthy community uninfluenced by the ups and downs of urban life around it. Perry carried the same idea into the internal structure of cities in his concept of the neighborhood unit, a residential cell capable of building up so strong a community life within itself that it would be capable of resisting the tendencies to depreciation and disintegration that might take place in the city about it. In each of these schemes the central theme has been unity, the creation of units that gain such strength from their internal organization that they are not at the complete mercy of the ordinary city-building forces. And so the first element of a good site plan is unity, an internal organization so strong that the huffs and puffs of its surroundings cannot blow it away.

Thoughtful consideration of the unit scheme has been given by the School of Architecture of the University of Liverpool, England. Two members of its faculty, Wesley Dougill and E. G. S. Elliot, refer to it in the course of papers which were published in the *Town Planning Review*. In a discussion of "Educational Buildings, Their Relation to the Town Plan," Mr. Dougill wrote:<sup>2</sup>

The close inter-connection between general planning and planning of the school system has already been referred to, and whilst this article is not primarily concerned with the former, one cannot escape discussing it.

Practically every town consists of a densely built-up core from which radiate the main traffic roads to the neighboring towns and country. Between these radials are wedge-shaped blocks of land on which the immense housing developments of recent years have taken place. . . .

<sup>1</sup> Augur, Tracy B., "Some Minimum Standards in Site Planning for Low-Cost Housing" in *Proceedings of Joint National Conference on Housing*, Washington, 1935, pp. 49-52. National Association of Housing Officials, Chicago, 1936.

<sup>2</sup> *Town Planning Review*, vol. 16, July, 1934, pp. 11-15. Published by the University Press of Liverpool, England.

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Thus we have round all our towns large wedge-shaped accretions of houses, accommodating in Greater London alone more than a million people, mainly to no preconceived plan, interspersed with occasional grouped schemes, but seldom with any organized provision of communal buildings, the latter a disability which becomes more acute the further the area is removed from the town center and the entertainment and other facilities there. . . .

Assuming that a change is to occur, what method of town development is to be substituted for it? I would suggest, apart from any consideration as to whether we should build satellite and independent towns, and irrespective as to whether flats or houses best meet present and possible future requirements, that far greater thought should be given to the town planning principle which has been termed the Neighborhood Unit, than has been given to it hitherto. This system has its adherents in America and England and is being vigorously advocated in the former country, whilst at the present time it is being practised in the new towns in Russia. . . .

A cardinal principle in the Neighborhood Unit plan is that the school should be raised from a secondary position, from being a housing cast-off, as it very often has been in the past, to be the most important element in the community of buildings which go to make a town. Each Unit would have its own school or schools; the scholar capacity of the schools and the maximum distance a child should be expected to walk would determine the size of the Unit. . . .

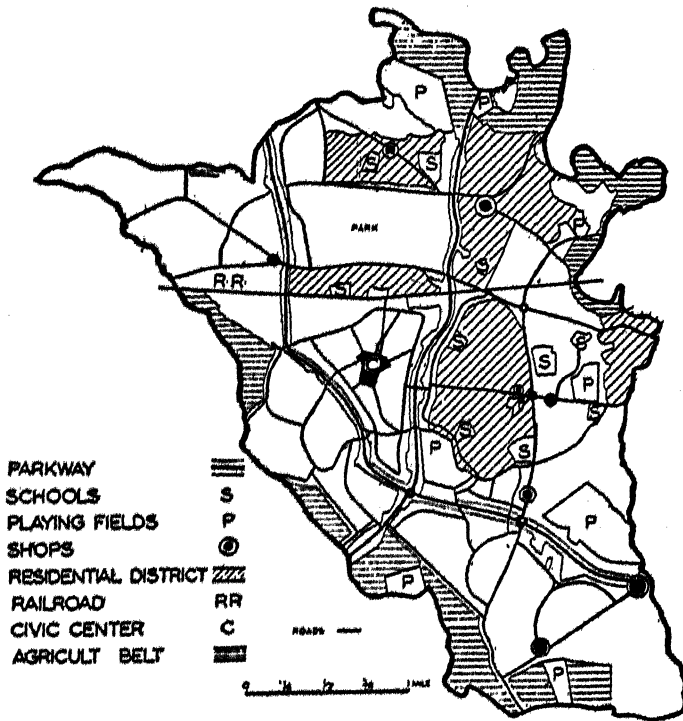
Whilst the Neighborhood Unit is only fully operative in virgin territory, we might with considerable advantage to ourselves and posterity begin to think on these lines when dealing with partly built-up areas or those undergoing remodelling. A few deflections in existing national and local policy would ensure its consummation.

According to Mr. Dougill, "No major planning scheme in this country [England] has attracted more attention or merits more intensive study than that of Wythenshawe." He states his reasons for this view in another article<sup>1</sup> in the same volume of the Town Planning Review (of which he is editor):

Wythenshawe is detached by a belt of comparatively open country from its parent city, Manchester. The dominating factors which have governed its creation are four in number. Firstly, the purchase by Manchester of the land on which the town is built; secondly, the stabilization and conservation of land values, at the outset, by means of zoning; thirdly, the acceptance of the neighborhood unit as the fundamental basis of planning; and fourthly, the adoption of the Parkway for main traffic routes.

<sup>1</sup> "Wythenshawe, a Modern Satellite Town," June, 1935, pp. 209-215.

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**WYTHENSHAW, MANCHESTER, ENGLAND, A TOWN FOR 100,000. A permanent agricultural belt of 1,000 acres. Scattered open spaces comprise another 1,000 acres. A total open space of 1 acre to 50 people. Space for outdoor recreation including a 100-acre golf course. The park contains 250 acres. Two parkways with an average right-of-way of 300 feet. Sites are reserved for a civic center, schools, churches, shopping, and industry. The shopping districts are placed at the juncture of four "neighborhood units."**

Reproduced from "What Is a City?" by Lewis Mumford, in *Architectural Record*, November, 1937



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Mr. Elliot's article is entitled, "American Housing before the New Deal,"<sup>1</sup> but in reality it is a summary and a review of the published reports of the President's Conference on Home Building and Home Ownership. The difficulties encountered by public effort in slum clearance had compelled Americans to turn to private developments in the suburbs. So Mr. Elliot interpreted the reports. Mentioning two English communities, he commented on the tendency in the following remark, and with it this chapter closes:

Attempts have been made to establish satellite towns on the lines of Welwyn and Letchworth, and there is a great deal of talk about the virtues of decentralization; it is however confessed that the tendency is towards the expansion of existing towns rather than to the establishment of new self-supporting communities. Therefore it is not surprising that the most notable contribution to the theory of town planning that has come out of America in recent years—the principle of the neighborhood unit—should be concerned with the problem of town extension.

<sup>1</sup> Town Planning Review, vol. 16, pp. 247-253.

## IV. SINGLE-FAMILY SECTIONS—GUIDING THEIR DEVELOPMENT

IN THE foregoing pages it has been argued that modern industry could produce less costly and yet better houses if it could acquire large plots on reasonable terms. Within city limits such plots could be secured regularly only through the exercise of condemnation. That power would be granted only if its use conferred outstanding public benefits. Removing the main causes of the present dissatisfaction with dwellings would be an adequate justification. Unsatisfactory conditions in the individual house could be cured by rebuilding it, but that step would not remedy defects in its environment. Both sets of annoyances would be removed by building new houses *in the right setting*, and incidentally another important reason for quantity production would be illustrated. To put this theory into practice it would be necessary to set up standard specifications to which proposed projects would have to conform if they were to enjoy municipal assistance in obtaining their plots, and for that purpose the neighborhood unit formula was suggested.

We come now to the application of the unit formula. At the outset it is apparent that we have to deal with two distinctive urban sections: (1) those suitable for single-family dwellings, and (2) those where economic circumstances require a heavier human load upon the land.

In this chapter we direct our attention to the first situation, and we begin at the point where usually farm or other unimproved land is cut up into lots for houses. In Chapter II it was held that the present methods of subdividing land were mainly responsible for the backward condition of the house-building industry. It is therefore appropriate for us to take a glance at those methods.

### PRESENT SUBDIVISION PRACTICES

A drive through the outskirts of most of our cities would bring to view large areas, crisscrossed by streets, curbstones, or sidewalks,

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yet exhibiting no dwellings that needed access upon their extensive highways. Residents in the adjacent district might disclose the fact that the tract had been opened years ago, at the time of a real estate boom. Further investigation would often reveal that hundreds of people had invested hard-earned savings in those lots and then lost them; and that the man who had cut up the tract, the subdivider, to whom they had reverted, was no longer able to pay the taxes on them. The municipality had not enforced its liens and taken the property because it did not want to go into the real estate business. Waste and loss were suffered by all parties to the premature marketing of this land.

The various aspects of excessive subdivision in New York State have recently been the subject of an intensive investigation carried on under the auspices of its State Planning Council. This timely and important study covers the four main metropolitan districts of New York, Buffalo, Rochester, and Syracuse. Regarding the extent of unneeded subdivision in these districts, the report says:<sup>1</sup>

The figures developed in the course of the study do not provide a basis for determining the precise area included in vacant subdivisions, but the available evidence warrants the guess that the prematurely subdivided areas in the metropolitan regions included in the study are more extensive than the total areas actually in use for urban purposes.

That is to say—if all the vacant lots in these metropolitan districts were improved with structures, their built-over land would be twice the size it is now. To realize the full effects of this oversupply of building sites we must remember that the defining of lot boundaries by subdividers is not all there is to the process. House sites are of little value unless people can have access to them without trespassing on private property, and unless water is available, and sewers are installed. To satisfy those needs the government comes into the picture. Let us see what that means. The report from which we quote continues:

One inevitable by-product of the premature subdivision for urban purposes was the creation of hundreds of miles of unneeded and unused streets,

<sup>1</sup> Cornick, Philip H., A Report to the State Planning Council of New York on the Problems Created by the Premature Subdivision of Urban Lands in Selected Metropolitan Districts in the State of New York. Division of State Planning, Albany, N. Y., February, 1938, pp. 290-292.

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equipped out of the proceeds of bond sales with all of the public improvements essential to the health, welfare and safety of an urban population which has not yet arrived.

When the municipality went into debt to supply those lots with public improvements, the assumption was that the costs would be returned to it through tax levies upon values which the improvements would create. Suppose, however, the lots are not sold—or at least not right away. The boom is past and the most suitable use for this land now is for agriculture.

The slow rate at which the over-supply of vacant building lots is absorbed into use on the one hand, coupled with the burden of recurrent annual levies for unneeded urban improvements and services on the other, destroys the purely speculative resale prices on which both the subdivision itself and the installation of street improvements had been predicated. The tax burdens, furthermore, destroy the possibility of deriving net incomes from the rural uses, on which a sound value might have been established.

With its intrinsic and speculative values diminished, the tract slowly passes into a sad state.

The lands therefore remain unused and unuseable for any purpose whatsoever. Debarred by circumstances wholly beyond their control from deriving any tangible benefits from the privilege of ownership, the owners of record cease to discharge the obligations which attend those privileges. Taxes fall into arrears, and for all practical purposes, the tracts assume the status of abandoned lands. In extreme cases, one year's installment of the local improvement levies alone may exceed the entire sound value of the lands for rural uses—the only uses by which a net income from the lands might otherwise have been derived.

Entire countrysides, the report says, have fallen into a blighted condition from these causes. One would naturally expect that the effects of the blight would be confined to the unneeded subdivisions. But—

The increased costs of government which grow out of the expenditures for local improvements in the subdivisions fall in higher taxes also on the unsubdivided areas in the vicinity of the vacant lots. The increased burdens on holdings of this kind are sufficient to wipe out in some cases the entire net incomes which the owners can derive from using those lands for

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the only purposes to which their properties are suited. As a consequence, those holdings also fall victims to the blight, and tend to appear in increasing numbers on the annual lists of properties in arrears.

When a municipal bond falls due, it is not possible to avoid payment by saying that the local improvement for which it was issued has not brought in sufficient funds. Who makes up the deficiency the report indicates.

By a process of shifting inherent in the municipal bond laws, and in the general and special tax laws of the state, the burden of the levies which the directly blighted areas cannot carry falls on the properties elsewhere. In addition to meeting the costs of constructing and maintaining the public improvements, and of providing the public services, which they need and use, these properties must assume in addition the costs of improvements and services which nobody needs and which nobody wants to use.

It might be thought that we had now reached the end of this train of evils, but the report continues the recital.

The owners of properties in the developed areas cannot evade the obligations of tax payment except on pain of losing the measureable and substantial rights to present and future incomes which flow from their ownership. The service on the debts incurred both for the needed and for the unneeded public improvements represents a fixed charge established by contract. Consequently the only means available to the owners of the developed properties for reducing the weight of their recurrent annual tax burdens is by exerting pressure on their public officials to reduce expenditures for the operation and maintenance of the very services which are most essential to the health, welfare and safety of the occupants of those properties.

Persons familiar with the vagaries of politics and municipal budgets know how much relief sorely burdened taxpayers are able to obtain by means of such pressures.

When the possibilities of reduction in aggregate tax burden which lie in that direction have been exhausted, the residue of the increase in tax burden for non-beneficial purposes must be absorbed by a reduction in the private expenditures for the maintenance and operation of the properties subject to the shifted tax, or by reduced standards of living on the part of the owners. The full impact of the shift is accentuated, furthermore, because it comes at the very time when the same depression which coincided

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with the collapse of the subdivision boom has already led to a marked shrinkage in incomes in general.

Thus we see the range of the economic effects of premature subdivision. The original land-owner, subdivider, lot buyers, neighboring taxpayers, taxpayers at large, and citywide patrons of the municipal services—the whole population generally suffers in one way or another.

## DEVELOPMENT METHODS

When a dealer in real estate specializes in "improving" land by erecting structures as inducements to buyers he is called a "developer," also an operative or speculative builder. When he begins with acreage purchased from a farm or an estate, and cuts it up into lots, suited to the type of dwellings he plans, then he performs the function of the subdivider as well. In this chapter we are concerned with the various ways in which raw land is developed into a residential district. Let us look at some samples. There is the developer with no sense of the amenity conferred by trees or the curving slopes of land, who applies a ruthless, geometrical pattern of small, just-alike lots to the acres of an ancient farm. What is the result? Rows of frame houses, varied only by the clashing colors of indiscriminate decoration, set so close as to constitute a fire hazard, with no reservations of space for play or other public services—that is the type of improvement which such mechanical subdivision encourages. On the other hand, there is the generous layout, quickly built up with fine houses exhibiting spacious landscaped yards and a generally charming character. Such a district is gravely injured when the greedy developer of the adjacent tract cuts his land up into small, uniform lots and covers them with row houses and concrete garage driveways. In selling his product this man advertises and trades upon the "exclusive, high class" character of the section—the quality which his own development helps to destroy. Such cases discourage generous, farsighted developments and place a premium upon the undifferentiated, bargain-counter exploitation of the deep human urge to own land.

The most noticeable characteristic of the products of our present ways of improving land is promiscuousness. Many of our fringe

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sections are hodge-podges. Single-family dwellings, two-family flats, two-family semi-detached houses, row houses, walk-up and elevator apartments are all jumbled together. Seldom do adjacent structures reveal any harmony in plan or decoration, unless they are row houses, and then the visible result is too often monotony. If there had been any woodland in the original tract, that has gone. If there had been any pleasant slopes, they have been graded. The total appearance is drab.

Probably the most serious consequences resulting from present methods are the inconveniences, hardships, and losses in human efficiency resulting from the ill adaptation of public or commercial services. Consider, for example, the suburban sections without convenient stores, and those on the other hand that have been ruined residentially by having too many. Then there are the numerous districts where children have to travel long distances and cross dangerous boulevards to reach a school, while in the downtown sections useful school edifices are being abandoned because their patrons have been driven away by the encroachment of business and traffic.<sup>1</sup> Most neighborhood districts are still laid out and built up entirely devoid of playgrounds. This is particularly true, as has been stated, of apartment house sections in which the developer not only covers practically all his lot, but loads it with many families. In these sections there is usually a specialization in highways in the interest of motorists but, beyond an occasional safety isle and some "one-way" streets, there is little change in highways designed to protect the pedestrian. And the annual casualty rate from vehicular accidents continues at a frightful height.

There is a tendency to think that the way to remedy this state of affairs is through education of the developer. To this end architectural journals every now and then print articles displaying beautiful developments. The government sends out attractive brochures containing approved layouts. But suppose a developer is skilled, and has high ideals—do real estate customs encourage his application of them? There is belief among those long experienced in the field that it is good practice to devote 10 per cent of a tract to playgrounds. The idea has even been embodied in legislative proposals. But the instances are few where it is feasible to employ

<sup>1</sup> See p. 171.

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this rule. In order to provide sufficient play space the developer must have a large tract and be able to surround it with streets and structures, and place it at a point where all his clients will have access to it, yet where it will not be overrun by the children of neighboring and less well-equipped tracts. The requisite situation is not often found.

With the best will in the world, a developer can ordinarily solve the store problem only through accidental circumstances. If his plot is zoned in part or entirely for business, or there is such a zone near by, he is fortunate and so are his customers. If he has a large tract he can often bring about the zoning of a business district within it. But otherwise, the matter so far as he is concerned is uncontrollable. He cannot move his tract near to a school if none is now accessible. Generally the school is not provided until the section is quite far advanced in development. As to the street system, the ordinary subdivider has little to say. Circumstances have made it seem necessary in most cities to have a uniform highway scheme, and such a one—usually of the gridiron type—has been adopted and is applied generally in the advance mapping of unimproved land. Unless he has an exceptionally large tract, the subdivider must accept the street pattern of the city.

The thoughtful citizen searching for a way to improve the city-building process comes, sooner or later, to the field of government. When he looks about in this province he is quite likely to be amazed. The powers affecting new residential districts which the municipality already possesses—is indeed already exercising—are surprisingly numerous. Let us list them.

If the land needed for the bed of new streets has not in some way been made available, the municipality can condemn it and assess the cost of the taking upon the abutting plots. Thus the city virtually controls the laying out of streets. It can install sewers and watermains and assess the costs upon the benefited properties. Through the police power exercised in zoning, the municipality decrees that certain structures shall be used only for residential purposes, that in certain other districts structures may also be used for business, and that in still others they may be devoted to factories, stores, or dwellings. By zoning, the city also sets up a rough control over the heights and bulks of buildings.



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The municipality locates new schools where it chooses, having the power to take over a site by eminent domain if it cannot be acquired advantageously by ordinary negotiation. In the same way it can take land for parks, even though such areas are to be used in whole or in part for play purposes. In behalf of the public interest the municipality is continually changing the character of highways. It widens and straightens streets, builds parkways, and erects bridges and underpasses. It regulates the flow of traffic.

With the government making use of all these powers, affecting in so many ways the pattern of the city's fabric, how can we account for the wastes, the misfits, the maladjustments, the inconveniences, and the grotesque effects which we see about us? It would be easy, but unwarranted, to lay it to the ineptness of public officials. If we searched more deeply we would find the fundamental cause, not in the operations of any one department, but in their lack of correlation to those of other departments. Often this is due to the fact that one phase of development is separated from another by several years. The streets are tentatively mapped at one time and utilities put in at another. Zoning is determined years before, and without reference to school-district requirements.

But not all the evils arise from the ill-timing of municipal activities. The kaleidoscopic character of residential sections may be traced to the fact that they are composed of many irregular plots, which were improved by various developers at different times, and with no consideration of their relation one to another. As has been pointed out, if a builder did a good job and stamped a fine character on his plot, the adjacent one, coming along afterward, was tempted to make his lots smaller, to cover more of the area with dwellings and to erect cheaper ones. The conditions are such that each individual builder is encouraged to put up the kind of product which will bring the quickest and most profitable price, regardless of its effect upon neighborhood character.

Suppose each of the squads composing a company of soldiers was autonomous, doing whatever and going wherever it pleased—would we expect such a company to win any battles or hold any ground? We have seen that a city neighborhood is composed of several elements which when effectively organized constitute a definite pattern. But it is not likely that these various elements will come

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together and take their proper places in the civic picture without a guiding or co-ordinating agency.

There is a procedure designed to correlate the various elements of a city. It is called city planning. It is now being applied, with more or less thoroughness, in the laying out of major highways, the building of bridges, the development of large parks, the location of public edifices, and other large aspects of city building. With the exception of sporadic instances, it has not yet been effectively applied in the subdivision and development of acreage and unimproved land. In the fashioning and construction of residential districts the undirected enterprise of land-owners is still the dominant force.

It is the purpose of this chapter to suggest the main features of a method whereby a measure of guidance and control can be exercised in the preparation of unimproved land for residential districts. Two major principles of the proposed method are: (1) a more effective control of the amount of subdivision of land, and (2) a regulation of the composition of large residential developments in the process of adding to or changing the official city map.

### CONTROL OF SUBDIVISION

The report of the New York State Planning Council, quoted earlier, discusses several forms of control now in use in various states.<sup>1</sup> Here they can only be listed:

1. In Cincinnati, before a subdivision plat is approved the subdivider is required to install all necessary street improvements, at his own expense, on city specifications, and subject to city inspection. The Ohio statute is permissive and Cincinnati is the only large city in the state that is exercising this right. It has cut down the number of subdivisions.

2. The laws of several states subject all subdivisions to planning controls. A subdivider who determines to proceed without the approval of his plat loses his right to record it. Unless it has been duly recorded the statutes deny the right to sell lots by reference to it, and impose penalties for trying to sell lots by metes and bounds. In the opinion of some experts the legal basis of this device is weak.

3. In New York the state has long delegated its police power to

<sup>1</sup>On pp. 307 ff. See footnote, p. 84.

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cities to control building operations in the interest of health, welfare, and safety. Structures erected along private streets not served by essential street improvements are a menace to health and safety. There would seem to be no reason why this situation should not be covered by a statute. In case a permit were requested to build on a lot facing on a private street, detailed information could be demanded concerning the provisions which the subdivider had made for a potable water supply, disposal of sanitary wastes, and control of the fire hazard. If no such facilities had been provided, the statute could require that the building plans include satisfactory provisions for such facilities at the expense of the owner.

4. Under a 1936 New York statute, the Secretary of State exercises control over lot sales on the instalment plan. Every contract affecting a lot fronting on a private street, and every deed transferring such a lot, is required to state plainly that the property involved fronts on a private street; that the municipality has no right to install street improvements, and no liability with respect thereto; and that the authority of the municipality to grant permits for the erection of buildings on the property is subject to the limitations imposed by state law. This law contains a number of other requirements making it difficult for a plat to be registered and used unless it had been approved by an official planning board.

The establishment of these interrelated controls would not require, in the opinion of the makers of the report, the exercise of any powers which are not already in use, and clearly defined, but "they would take the joy out of subdividing cow pastures by saddling the costs and liabilities now borne by the general public on those who engage in such activities for profit."

A municipality is somewhat like an association of persons who have joined together in the business of supplying themselves with sewers, watermains, recreation grounds, schools, and other services. Their pipes, parks, and buildings are at the moment—let us say—just right in capacity and location for the present needs. Suddenly crowds of strangers begin to erect houses around the borders of the association's land and to demand extension of its common services to their dwellings. If the newcomers in a given sector were of the number for which new facilities could be installed at a rate no greater than the residents were then paying, they would be wel-

## SINGLE-FAMILY SECTIONS

come. If on the other hand the newcomers settled in such places and in such numbers that they could not be accommodated without adding to the expense, or the inconvenience, of the present residents, then there would certainly be loud objection to the strangers. An intelligent association would set up and enforce regulations governing the admission of new families to the enjoyment of its common services. That, in a word, is precisely the principle that is urged in the proposed procedure. To apply it involves the setting up of regulations similar to those which have been enumerated.

### OFFICIAL CITY MAP AND THE CITY PLAN

We have seen that the elements of an urban neighborhood are seldom properly composed under the conditions of free and unguided development. A "scheme of arrangement" for those elements was described in the preceding chapter. The problem now is that of bringing about an application of that formula to new tracts before they have been cut up in such ways as to make it impractical to shape them into desirable patterns. Obviously the time to do it is before they have become embedded in a rigid official city map.

The *official map* shows streets, parks, zoning districts, and the boundaries of all public properties. It is always established by the municipal legislature and it has to be so accurate that surveyors' and builders' stakes can be determined by it. Naturally it can be changed only by the body which controls it—the city law-makers. In progressive cities proposals for changes in the city map are prepared and recommended to the municipal council by a city planning commission, and the device they use for that purpose is called the "master plan."

A *master plan* is a tentative "paper" plan. It may show desirable streets, bridges, tunnels, parks, sewers, the uses of land, and any other aspects of planning. Sometimes existing improvements are shown so as to indicate where proposed improvements would begin. Contemplated features can be taken off the master plan when it is seen that other and better ways of meeting a particular need can be devised. In a word, the documents making up a master plan are the "working papers" of a planning commission. Certain features upon which the commission is definitely agreed may, by

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a vote of its members, be made a matter of record. The master plan should be open to the public, but it is to be regarded only as a *means* by which the planning commission prepares for the changes or additions it proposes for the permanent and official city map.

Readers having a special interest in the technical aspects of this subject would do well to consult *Model Laws for Planning Cities, Counties and States*, by Bassett, Williams, Bettman, and Whitten,<sup>1</sup> and *The Master Plan*, by Bassett.<sup>2</sup> All four authors favor the showing of proposed parks and playgrounds and the sites of public buildings, such as public schools, on the master plan. Bettman and Whitten would also show proposed neighborhood units. But they do not indicate how these features of desirable residential districts can regularly and as a matter of course be transferred from the master plan to the official city map—how they can make the journey from the dreamland of the planner to the world of the house-owner. A way of making that trip the writer now ventures to suggest.

The stage of city development at which the proposed procedure can best be initiated is easily sketched. We are within the city limits but beyond the section that is covered by the official city map and its array of established streets. The only structures in the area are miscellaneous farm and country estate houses, barns, and occasional roadside filling stations. An official city planning commission has been established and regulations controlling subdivisions similar to those enumerated above are in force. The commission is now making studies and taking other steps to open officially this section for improvement. In a word, it is preparing a master plan for the new section.

### MASTER PLAN STAGE

Surveys of the terrain and studies of future requirements enable the commission to make tentative decisions in the following matters:

1. Regional highways—(a) acceptable; (b) to be straightened, (c) and to be widened; (d) routes of new main highways.

<sup>1</sup> No. 7, Harvard City Planning Studies, Harvard University Press, Cambridge, 1935.

<sup>2</sup> Russell Sage Foundation, New York, 1938.

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2. Locations of sites for citywide or regional parks; for hospitals, jails, other public buildings; airports; cemeteries.
3. Boundaries of use districts—(a) residential, (b) business (but not those in neighborhood units), and (c) industrial.
4. Neighborhood units—districts carved out of areas designated for residential use, which are now, or can be, entirely bounded by main highways, and which are large enough, when populated at a suitable density, to require one elementary school.
5. Interstitial areas—remnant plots not included in any of the above classes.

In this manner the entire area selected as ripe for improvement is tentatively allocated to suitable and needed uses. If the final studies of the planning board justify the allotments made, they are then put into effect through the following steps, taken in any order that may seem desirable:

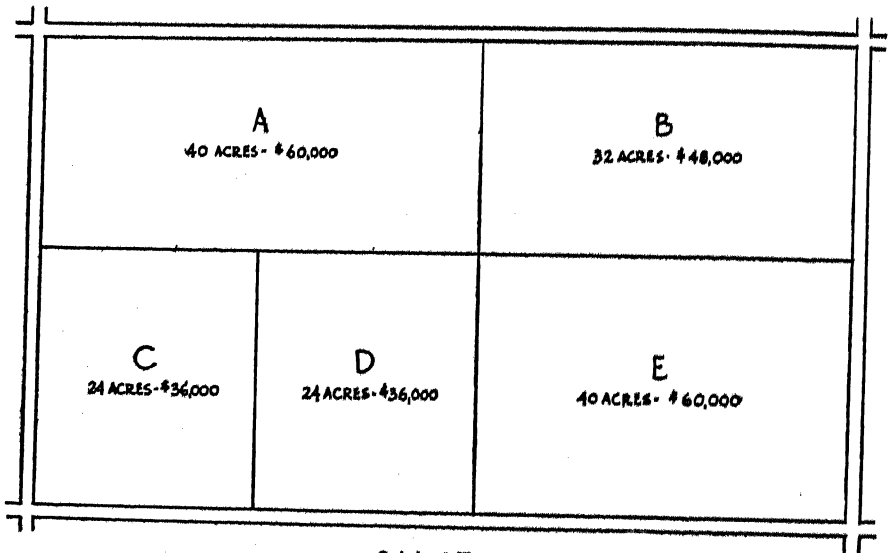
1. Regional highways are put upon the official map in the customary ways.
2. Sites selected for public buildings are acquired, reserved, or optioned.
3. Business and industrial (unrestricted) districts are mapped for streets, zoned and then placed upon the official map.
4. Each of the demarcated neighborhood units is given the special treatment described below.
5. Interstitial areas (including the irregular plots allocated to a residential use but not included in any of the neighborhood units) are also treated in the usual way.

## MAPPING A NEIGHBORHOOD UNIT DISTRICT

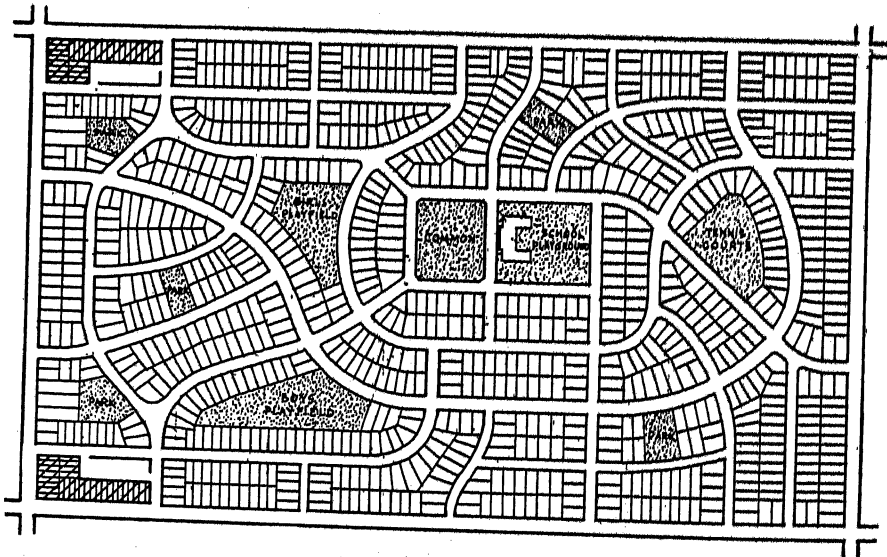
Let us assume that a city planning commission has been established and that it has become a definite policy of the municipality in question to use its powers aggressively in the creation of neighborhood units, and that it has provided within the commission a competent staff for that purpose. All residential areas suitable for neighborhood communities are to be given this treatment, because it is recognized as best serving the interests of the taxpayers and citizens in general.

The first step in the procedure is that of ascertaining the various owners of the land within the unit district and their respective shares in its total present value. If the assessed valuations show that all parts have the same value per square foot, then the respective shares can be computed on the basis of the ratio which each

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1. Original Tracts

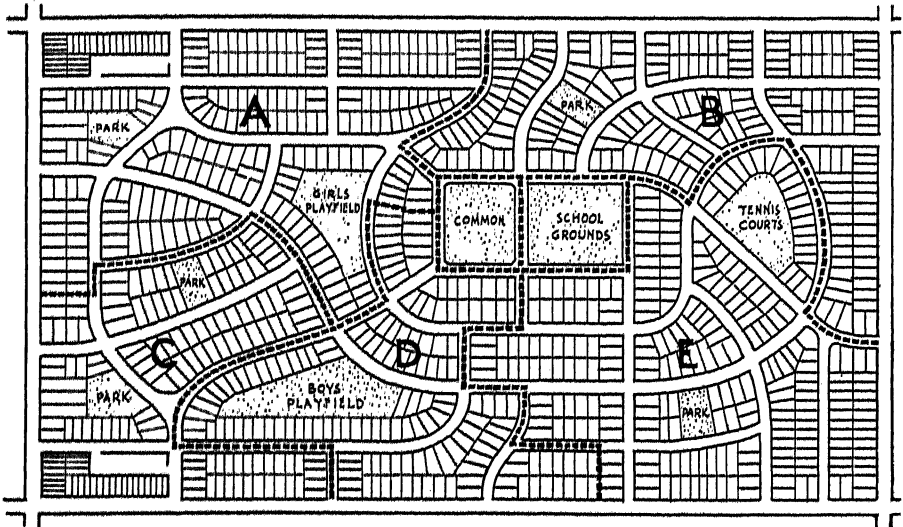


2. New Subdivision Plan

## DEVELOPING A NEIGHBORHOOD UNIT SUBDIVISION

The diagram on following page is of the third stage

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3. Revised Property Lines

owner's acreage bears to the total acreage. If some parts of the tract are more valuable than others, then the percentages must be figured on the basis of the assessed values of the respective plots.

The city planning staff next prepares a tentative layout for the unit district. If any of the boundary highways are not wide enough for arterial traffic, these are suitably widened by taking strips of land from the unit. A site for a public school is located in the central region at a point which, considering the terrain, will prove most suitable as to access and the use of the school yard for play purposes. Since the local school board will, in time, be expected to buy this site, it should be of acceptable size. Ordinarily, at least one acre will be required for the building and its landscaped grounds, exclusive of its play area.

About 10 per cent of the total unit area should be set aside for playfields and small parks. The best locations for these will be indicated by the topography and the particular uses for which the various plots are intended. At least two acres of play space should be added to the school grounds and some of the park area might well be placed in front of the school site to form a common. Around this square might also be reserved one or more church sites



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as well as a place for a possible public library branch. But these sites should be laid out so that they will also be suitable for dwellings in case they are not taken up for the more public structures. As properties they will here be regarded simply as building lots.

A study of future transit facilities and the probable routes which residents will take in going to and from work should disclose the principal portals of the district. At those points shopping districts should be planned. The total number of stores to be provided for should be based upon the population which the unit will ultimately house, and be computed with the help of the latest city planning data upon neighborhood shopping requirements. These shopping districts should be bunched in form and be provided with service streets and parking spaces.

A special system of interior streets should be laid out. They should provide convenient channels for movement toward the neighborhood center and to the various portals. Each street should be proportioned in width to its probable future traffic. Contours should be observed and shapes of the blocks created should be such as to divide nicely into the type of building plots for which the tract is best suited. No interior street should afford a direct, or uninterrupted, passage clear through the neighborhood unit or be of a character to encourage speedy driving.

The final step is the subdivision into lots. The size that is selected should be as close as possible to that which an informed real estate man would say was best for that type of district. In the layout of the parks, shopping districts, and streets, however, planners may well follow the best planning technique. Subdivision into lots will complete the tentative unit plan. How such a plan might look can be seen by referring to the diagram on page 96 and the Whitten plan on page 58.

### GETTING THE NEIGHBORHOOD UNIT PLAN ACCEPTED

The tentative plan is made up of the following elements:

1. School site
2. Parks and playgrounds
3. Streets (including business parking space)
4. Sites for dwellings and stores

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They are all constituted of the same kind of earth, but they serve different purposes. The functions these elements perform are all useful to the various owners and desired by them. Each owner would probably be willing to surrender a proper portion of his land for them. But if no part of an owner's plot is included in a mapped park, how is his contribution to be made? How can you take some square feet from his plot and carry them over into another part of the tract where a playground has been laid out? Physically it cannot be done. The only feasible method is that of transforming his and the other properties into dollars, and then redistributing them in such a way that all will have made proportionate contributions to the common service.

For this purpose the newly mapped lots are all numbered and appraised in their recast forms. This act can be performed by the regular tax assessors or by some other appraising body if there is one with greater prestige. Under the new valuation, the plots which are to be sold—the school site and the store and dwelling lots—should show a greater total value than the tract did as acreage. It is true that the salable area does not include the parks and playgrounds nor the beds of the streets. But the values of those service areas can be regarded as having been transferred to the abutting building sites. If this assumption is correct, and the new correlation is worth anything in itself, then there will be a larger value to distribute among the owners than is represented by the sum of their original properties. Their shares of this new total valuation are fixed by the percentages of ownership established at the beginning of this procedure. Their shares are now, however, in terms of dollars. How are they going to be transformed back again into shares of land—into building lots?

The properties to be distributed consist of mapped parcels—one large school site, and a series of numbered building lots—each with its appraised value. Let us see now how a tentative distribution of these properties among the various owners can be worked out. Mr. A is entitled to 35 per cent of the property and his share amounts to X dollars. On the map, in the section where his plot is located, a collection of building lots is picked out for him in such a way as to make a continuous parcel. The problem is to make this selection in a manner by which the total value of the lots will be

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precisely equal to Mr. A's share—that is, X dollars. Obviously this will seldom be possible. What can be done is to allocate to him as many entire lots as his share will cover and for the balance to assign him a part ownership in the school plot. If all the other owners are treated in the same way, the salable part of the planned unit will have been entirely included in this tentative distribution. Each owner's allotment will include a collection of mapped lots, in the general location of his property, and a supplementary share in the school site at its appraised value. Before outlining the method of effecting the distribution let us deal with one vital point.

In considering the acceptability of the school plot shares, the question will be asked, "What assurance is there that the municipality will buy this plot and erect a school building upon it?" It is true that unless the municipality is ready to enter into a sales contract at that time, there is no way a literal and enforceable obligation can be set up. It is to be remembered, however, that one of the definite and published purposes of the city in establishing this procedure is that of creating well-planned school districts. This area had been selected because it was the right size. The school site had been given the right location. The district is to be zoned in such a way that the right school population will be assured. In every way the conditions for an efficient educational service are being established. For a municipality not to take advantage of them by building a school upon the selected site when it was needed by the residents would be a form of conspicuous stupidity which no administration would dare to exhibit. Certainly if the city showed an unfavorable attitude when the time for action came, there would be enough voters, in touch with one another, to make an effective protest.

Neither could definite assurance be given that the appraised value of the school site would be paid when it was purchased. But owners would know that the city would have, eventually, to pay the price they set upon it or, in case of condemnation, to let them furnish evidence in court as to its market value. Under the circumstances the probabilities are that the price finally paid would reflect the appreciation in value that normally occurs in a well-planned development. Since the shares of the several owners would

## SINGLE-FAMILY SECTIONS

be in the form of percentages, they would increase with the value of the school site.

After a scheme of redistribution had been worked out, the planning commission would then be in position to take the matter up with the owners. The new plan would be shown to them and all its features and advantages fully explained. The tentative plan for distributing the building lots and school site would be explained and the difficulty of making any other kind of redistribution would be set forth.

The method of effecting the transfers, if all owners agreed to the scheme, would then be declared. They would all be asked to transfer their properties to the municipality and simultaneously they would receive from it deeds to the building lots and ownership shares of the school site as apportioned to them in the redistribution scheme. Deeds would refer to a plat and subdivision plan, giving effect to the neighborhood unit layout, and the filing of this plat, endorsed with the formal approval of the planning commission, would constitute the offer of a dedication of the streets and parks, and make the plat a part of the official map of the city.

It would be pointed out, furthermore, that their deeds would contain covenants placing certain restrictions upon the land. These covenants would deal with set-backs, types of permissible structures, uses of properties, easements for telephone and electric light poles, fees for maintenance of parks and playgrounds and other common properties, and they might set a cost limit on the dwellings which could be erected. Covenants should provide for architectural supervision over all building plans.

Certain restrictions would indubitably be in the interest of the particular type of development, while others, not quite so standardized by usage, would contain points about which owners would have differing opinions. The planning commission would have to reconcile these opinions if it could, insist upon the first class of restrictions, and, as to the second class, give owners a voice provided they could agree or develop a majority opinion.

There would be various public hearings and other details of procedure which it is not necessary to mention here. Mortgagees and other parties holding liens on the properties concerned would also have to be considered. In this discussion they are regarded as part

## HOUSING FOR THE MACHINE AGE

owners and their consents to the substitution of new properties as securities would have to be obtained. All considerations as to the acceptability of this scheme that touch owners apply also to mortgagees.

A scheme of this sort has little value if it will not or cannot be made to work. If it were approved by public opinion but not by owners of the land, there would be difficulty in operating it under legal compulsion. It offers, however, so many and such important advantages that it would seem likely to secure their support. Let us enumerate:

1. Subdivision control takes most of the uncertainty out of a developer's problem as to the time when there will be a demand for his product. Curtailment of premature subdivision by the government is not original with this scheme but it is necessary to its practical operation. The withholding of municipal co-operation in the extension of a city map and its street utility system, until the raw land is ready to be laid out in the best way, practically assures a good market for building sites when they are created.

2. The land-owner receives, if he wishes to take advantage of it, free subdivision service. After a city planning staff has made several of these unit layouts it will know what requirements will be feasible to set up in passing upon subdivision proposals made by an owner or owners of land within a demarcated unit district. As developers become familiar with the unit scheme, they will begin to use their inventiveness in devising plans of their own. In this way they may not only expedite the opening of their tract but also produce a development plan of greater marketability.

3. Because of the attractive characteristics of the unit layout and the governmental auspices under which it is elaborated, it is practically certain that a unit district will be rapidly built up and settled. This in turn makes probable prompt installation of sewers, watermains, and other street utilities, as well as the services of post office, fire department, police, and school systems. Such assurance is a sales argument of great effectiveness.

4. The virtues of a comprehensive plan, and the stability of sound property values which it promotes, will make the securing of mortgage money easier for the developer and his customers. Neighborhood planning is warmly advocated by the Federal Hous-

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ing Administration and a unit plan would have an excellent chance of securing government insurance on a mortgage loan.

5. The neighborhood unit scheme makes it possible for all contributors of land to a local community to obtain their rightful shares of the business increment. Store values depend largely upon the consuming ability of residents. These values should go to those who are responsible for the dwellings that bring in residents.

6. Finally, the developer is able to obtain for his building sites another important sales advantage—accessibility to playgrounds, which under ordinary circumstances he cannot provide. Furthermore, he will secure this advantage at little or no cost and, also, much less expensive street utilities, because of the specialized character of the neighborhood unit street system.

Evidence upon the last point has already been referred to on page 59. It is well summed up in the following statement by two authoritative city planners, Robert Whitten and Thomas Adams:<sup>1</sup>

The present ordinary street and block pattern for residential neighborhoods is wasteful in its street and utility construction requirements, and lacking in provision for neighborhood requirements. From 15 to 40 per cent of the money expended for street improvements can be saved by careful planning. From 15 to 30 per cent of the gross land area now inefficiently used or wasted can be devoted to interior-block and neighborhood parks without any additional cost for land. The saving that can be effected in street and lot-improvement costs is more than adequate to pay the cost of park development and other community betterments.

In the last analysis the above advantages all mean more dollars and cents for the participating land-owner. Moreover, the scheme offers other sources of satisfaction. The size of the lots having been fixed and uses of the land which can be made by himself and by his partners having been regulated and restricted, the temptation to greedy exploitation is pretty well removed. It would seem that the situation would naturally stimulate a rivalry in the creation of fine residential quality.

When these various advantages are thoroughly appreciated they should be of sufficient weight to inspire feelings of satisfaction among the original owners and to secure their prompt co-operation

<sup>1</sup> Whitten, Robert, and Adams, Thomas, *Neighborhoods of Small Homes*. Harvard University Press, Cambridge, 1931, p. 80.

in the consolidation and redistribution of the properties. Probably in most instances a majority of owners would be agreeable to the scheme. If, on the contrary, they were all, or even in a majority, against it, then the planning board might well re-examine its plan and see if it was not somehow responsible for the lack of support. Despite all precautions, however, instances would undoubtedly arise in which one or more of the owners would refuse to join in the scheme. The procedure must contain a method for handling the refractory land-owner.

Another difficulty arises from the fact that an owner might be willing to enter into the consolidation but could not give an unclouded title to his land. So far as this procedure is concerned such owners are in the class of refractory owners and they would have to be handled in the same way.

Where an unwilling owner's acreage was not large, or was so located that its non-inclusion would not seriously affect the plan as a whole, it might be possible to leave him out of the scheme, at least for the time being. The city could, under the circumstances, refuse to let him file a plat or make connections with the municipal pipe lines. This kind of penalty would undoubtedly bring him to terms or persuade him to sell his property to a party presumably more compliant.

An unwilling owner whose land was vital to a given project would have to be dealt with in a more straightforward manner. If this were a joint improvement operation, like a drainage or an irrigation scheme, there would be well-established precedents for a statute compelling participation under the state's police power. In such cases the owner is assessed a share of the cost of the improvement and compelled to pay it. In the scheme under discussion, the owner has to give up his plot and take another in its stead. Since he cannot be parted from his land forcibly—even in an exchange that is obviously to his advantage—without due process of law, the only remedy here is condemnation.

The final implementing feature of this special procedure, then, is the provision of the power of eminent domain to the municipality, enabling it to take the land of an unwilling owner or of an owner whose title was clouded. This would be essential before the municipality could lease the land or transfer it by deed to other parties

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who would participate in the subdivision plan. This power would have to be delegated in a statute enacted by the state legislature. It would probably take the form of an authorization to include neighborhood units among the planning features to be shown on the master plan and to include a technique, more or less like that just outlined, among the measures for regulating subdivisions. The legislature would grant to the municipality the sovereign power of condemnation only on the grounds of a clear public use. The general advantages of this scheme have already been mentioned, but they will be specifically treated in Chapter VII, on eminent domain and devoted entirely to the legal question as to whether neighborhood unit developments can qualify as a public use.

### OPPORTUNITY FOR LARGE-SCALE CONSTRUCTION

Assuming that the procedure just outlined became legally established, in what way would it facilitate the mass production of dwellings? It must be admitted that, in itself, it would not reduce the number of owners of the integrated neighborhood tract. Their several plots would have a relation to one another through the common services and the comprehensive restrictions. But each owner would be free to sell his own lots or to build on them himself.

There are ways, however, in which this procedure increases the opportunities of an operative builder—especially one with ample capital. To understand these advantages we must bear in mind several conditions which differentiate this from the traditional real estate situation.

1. In the first place, the rate at which these neighborhood subdivisions will be placed upon the market will be governed by a city planning commission that is familiar with the current demand for dwellings and has determined in each instance that a housing development at the selected location is in the public interest. Additional tracts will be opened up regularly, but no oftener than they can be absorbed. Thus the danger of overproduction and a consequent slump in the market will be minimized, a circumstance that will cause savings banks to be less timid in making large loans on these projects.

2. Even more important is the fact that complete, planned neigh-



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neighborhood developments are already regarded so highly as security that a large builder is able to get his mortgage money at less expense than the small borrower.

3. Under the proposed subdivision procedure the filing of the comprehensive plat practically places all component parcels on the market at the same moment and place. These properties all have clean titles and their amalgamation into a planned district has endowed them with a more certain and desirable destiny. They come on the market under circumstances wherein it is possible that they all can be acquired through simultaneous deals as both sellers and buyers are under competition.

4. The various owners, because of contacts with one another during the preliminaries of this procedure, are nearer a consensus as to the value of their properties and the course of action which will best serve their interests. This circumstance favors rational negotiation.

Under these conditions, which type of organization will succeed more frequently in getting control of these neighborhood subdivisions—the small developer able to handle only part of a tract, or the special corporation with large capital and the ability to construct the whole unit? Obviously, in the long run, it will be the buyer who can offer owners the best price for their lands, and that, unless the history of modern industry has been misinterpreted, is the large organization.

It is not expected, nor is it necessary, that *all* neighborhood subdivisions produced under this procedure will enjoy the fortunate fate of comprehensive construction. Tracts suitable for higher class, custom-made homes will, in many instances, continue to be improved by the methods now in vogue. The critical question is whether the situation will be such as to permit a few large corporations to get a start in the housing field. Since unit developments will run from 600 to 2,000 houses each (populations from 3,000 to 10,000), besides the stores, even *one* of these projects at a time would constitute in the beginning a worthwhile opportunity for an ambitious corporation, and there can be little doubt of its being seized by such a concern if this procedure becomes established. If it demonstrated merit in one city it would be set up in other cities and states. More and more opportunities would be offered to the

## SINGLE-FAMILY SECTIONS

pioneering special construction corporations and with each project their skill and strength would grow.

Here is the essential point. The speculative builder, as we have seen, is primarily a dealer in land. His energies and skill are concentrated upon the task of acquiring land and selling it. His whole occupational situation tends to make him a specialist in real estate, with only a secondary interest in construction. The large construction corporation, on the other hand, will treat land acquisition as a routine matter, like the purchase of steel or lumber, and devote its main energies to lowering costs of production and to improvement of its product. It will become a specialist in manufacture and sale of houses *with their environments*, because that course is its best method of making profits.

Some of the results which may be expected from tying up building sites in packages large enough for the operation of modern industry will be discussed in Chapter VIII on cheaper and better dwellings.

## V. APARTMENT HOUSE NEIGHBORHOOD UNITS

A MULTI-FAMILY district is much more influenced by its surroundings than is a single-family settlement. To understand the form and size that an apartment house neighborhood unit will take, it is necessary first to know the conditions in the general section where it is to be located. In this chapter continuing the application of the unit scheme we will, then, examine several types of urban sections along with the particular kinds of apartment house developments which seem suited to them. First, however, a brief word regarding the multi-family dwelling as a way of life.

Brought up in a single-family house, and still residing in one, the writer is naturally biased in favor of that form of living. He is convinced that it would be preferred by many people now tenants in apartments if they could find suitable dwellings and surroundings. There are conditions, however, that call for apartments. With the help of the automobile and a period of prosperity we have developed a fairly large two-home class, people who live in a city apartment during the working- and school-day week and in the country during weekends and vacation periods. A family may have only a shack or a camp in a rural district, but it nevertheless furnishes a genuine contact with country life. Such people have good reason for not attempting the traditional family establishment in the city.

Again, some young heads of families find that the search for the right job is likely to last for years. They face a roving period, and it is to their advantage to keep their families in a mobile condition, not loaded with household impedimenta. "Building the home" may be a cherished ideal but it is not yet always practicable.

Particular vocational objectives sometimes demand a special menage. Thus, for a young woman who is studying to become a magazine illustrator, married to a man who is trying to gain a foothold in the advertising world, the modern apartment suite is ob-

## APARTMENT HOUSE NEIGHBORHOOD UNITS

viously a better living-place than a free-standing house, with its attic, cellar, and full household equipment. The statement holds for any other housekeeping group where the main concern of its members is advancement occupationally. Elderly couples whose children, now adult, have gone to homes of their own, may also prefer the simpler domesticity of the two- or three-room apartment.

However, even if we found apartment houses utterly objectionable, there is no way in which we can get rid of them. Suppose that we could demolish the structures, their sites would still have to be used in most cases for residential purposes. Only multi-millionaires could live on that land in single-family dwellings, and they prefer their country estates. The rational course, under the circumstances, is to reconstruct blighted multi-family dwellings as fast as they reach that state, and to do it in a manner that removes their present defects. These, insofar as they inhere in the individual structure, could be remedied by new buildings, but the defects of environment would not automatically be taken care of in that way.

It will be noted that in Chapter I attention was called to the lack of play space and of facilities for community life as two major shortcomings in apartment house existence. Both of these are matters of environment, and they can be corrected only by constructing whole districts in which dwellings are related to common facilities for recreation and group activity, as well as other desirable neighborhood services.

We pass now to an examination of a series of plot plans for apartment house developments. They might be regarded as sketches of new ways of living. Each plan provides for recreation and associational activity, but in this chapter only a description of the common facilities will be given. Their relationship to community life will be discussed in Chapter IX, on the history and social significance of the unit idea.

The plans described are adapted to particular locations in New York City and each represents a typical urban situation as respects density, distance from the main business center, and character of living accommodations. While the examples chosen happen to have a large-city setting, the conditions to which they are suited can be found, in varying degrees, in practically all cities. City

## HOUSING FOR THE MACHINE AGE

planners of any municipality in which multi-family dwellings have made headway might well examine the underlying principles embodied in these studies. They would generally discover that the same principles and features could be incorporated in a special plan suited to their own local conditions.

Each of these examples is treated as a city planning problem, and for the sake of realism the local situation, basic to the solution offered, is presented in some detail. The first study—that of a district adjacent to the World's Fair area in New York City, is not a rebuilding proposition but refers to a section now mainly unimproved, for which a multi-family development is required by real estate conditions. Much more space is given to this study than to those that follow because of the unusual opportunity it presents for visualizing the unsatisfactory conditions now being developed, under the present lack of city planning control, in a section that has received the special attention of zoners and city authorities.

The second study—that of the Winfield section—is based upon a district that was largely built up but was already threatened with deterioration. The two plans or layouts which it presents have a suitability, it is believed, for rebuilding central slum districts in cities smaller than those in the million population class.

The third study deals with metropolitan slums, and is based upon conditions found in New York's lower East Side. The two plans presented use dimensions of blocks existing in that section but otherwise do not refer to an actual location.

### WORLD'S FAIR DISTRICT<sup>1</sup>

In the fall of 1935, when the project of the World's Fair at Flushing Meadow, Borough of Queens, to be opened in 1939, was first broached, residents of Forest Hills—a modern suburb of New York City of fine quality nine miles from Broadway—became concerned

<sup>1</sup> This material has been taken, in revised form, from a report prepared in 1937 by the writer as chairman of the Neighborhood Planning Committee for Forest Hills and Vicinity. The data upon which it is based were gathered largely by the Mayor's Committee on City Planning and the Works Progress Administration. The architectural studies are by Edward James Mathews, one of the architects of Rockefeller Center in New York City and a member of the Mayor's Committee. In compiling the economic data valuable assistance was given by the Regional Plan Association and by the A. L. Hartridge Company, a leading concern in the field of building construction.

## APARTMENT HOUSE NEIGHBORHOOD UNITS

regarding the character of the real estate development which that project was likely to stimulate along its northwestern border. A local committee was formed to study and report upon the situation. What it found and recommended is here presented.

The area in question covered about 356 acres, was largely unimproved, and at that time a considerable portion was without legally opened streets. Triangular in shape, it was flanked on the east by the site selected for the World's Fair, on the north by a planned but then unpaved arterial highway, and on the south and west by Queens Boulevard, one of New York's main thoroughfares, leading to the parkway systems that serve Long Island villages and state parks. At that time a subway line had been constructed beneath the 200-foot pavement of the Boulevard—actually opened early in 1936—and three of the stations were to serve residents of the district under discussion when it once became fully settled. Flushing Meadow had for years been a swamp. But now it was being drained, filled in, landscaped, and otherwise prepared for use as a permanent public park after the Exhibition should be over.

A district like this—hereafter distinguished in these pages as the "Area"—which lay between five-cent transportation on the one hand and a projected park of 1,200 acres on the other, was bound to excite rosy hopes on the part of its owners and potential residents. The most conspicuous feature in the situation was, of course, the projected park. Flushing Meadow, officially characterized as "ugly, dusty ash dumps and low-lying swamps,"<sup>1</sup> which seemed destined to become another Newtown Creek with factory-lined banks, was now to grow in "Cinderella-like fashion into one of the largest and most beautiful parks in the entire city."

This prophecy even in 1935 was being realized, warranted both by the transformation which the Park Department of New York City had already wrought in its marsh lands and by the plans elaborated for the future permanent development of the park. The lakes, lagoons, yacht basin, landscaped drives, amphitheater and water stage, great variety of playfields and generous parking spaces which had been envisaged—all betokened a future recreational attractiveness of the most brilliant character. Its effect upon the desirability of building plottage along the western border of the

<sup>1</sup> The Flushing Meadow Improvement, February, 1937, p. 16.

## HOUSING FOR THE MACHINE AGE

park—especially that in the vicinity of Forest Hills—was obvious. To assure permanency to that effect and to enable the widest possible enjoyment of park vistas by future residents, authorities had recently tightened the zoning restrictions along this border.

Advantages of this Area from a real estate standpoint, as they appeared to park officials, can be summed up as follows: Proximity to a magnificent park; its openness and charms, enhanced through protective zoning; nearness to subways and arterial parkways; favorable land topography; access to schools and to retail stores; adequate sewers. Because of these advantages officials believed that this district would develop eventually as one of the finest residential communities in the city.

It therefore became a matter of importance to examine the situation carefully and see if the expectations were well founded. There was no question about the attractiveness of the future Flushing Meadow Park. The existence of this area of beauty and interest was certain. The subway was in operation. Parkways were already open. The building terrain required only a little leveling. Sewers offered no problem. The intentions of authorities who secured the zoning changes were good.

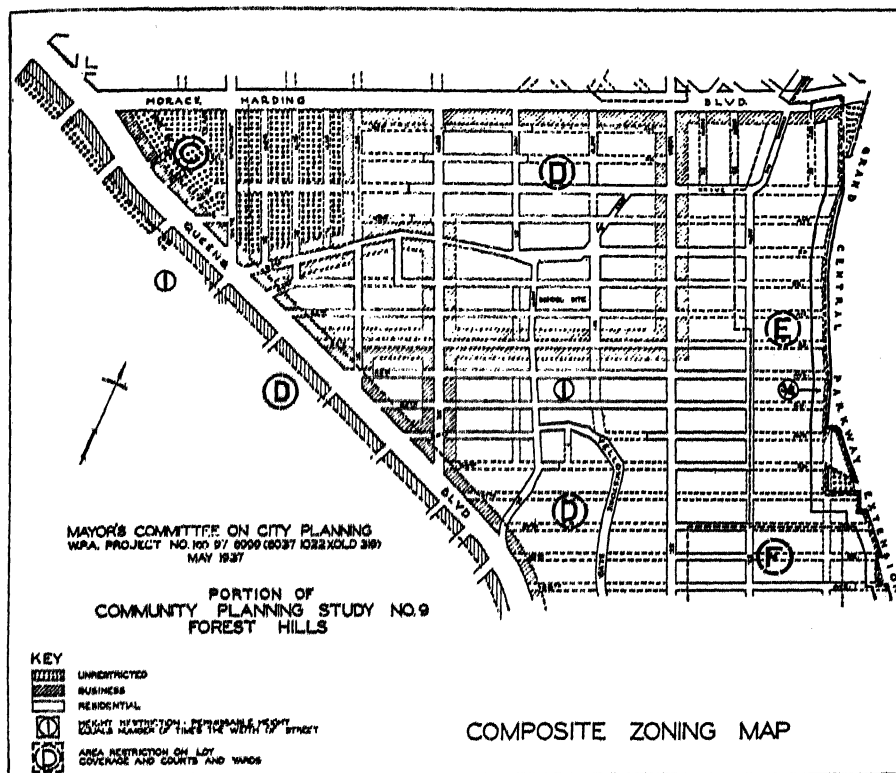
But, just how effective would those new zoning restrictions be in enabling nearby dwellers to enjoy the freshness, the openness, and the landscaped charm of the sylvan park? It was important to learn also whether the frontage that had been zoned for business was well adjusted to the shopping needs of the future population, and whether it was shaped so as to confine, or to spread, the unsightliness of business structures. Was there any assurance that the schools would be adequate in number, well located, and accessible to pupils with the minimum of risk from traffic? It was pertinent to discover whether every street junction was going to be equally perilous to pedestrians, and whether there would be any areas close to homes where children could play in safety.

In any scheme for an ideal residential community—one of the “finest” in the city—there should be no doubt on these points.

When we look at the new zoning restrictions shown on the composite zoning map, page 113, what do we find? In zone E, varying from 600 to 800 feet and bordering the park, the authorities announced that only single or two-family dwellings or garden type

## APARTMENT HOUSE NEIGHBORHOOD UNITS

apartments may be built. This does not mean, unfortunately, that any detached dwellings actually *will be* built in this zone. It happens that practically this entire strip is in the hands of one owner. Profits dictate that he devote his land to apartments. They may



## MAP OF AREA STUDIED

World's Fair site adjacent on the right. See Airplane View facing page 115

cover only a half of their plot, but the restrictions permit them to be—and they probably will be—six stories in height. The first row of apartments, in the suites facing the park, will enjoy vistas of its beauty. In the row behind *some* of the windows will command the park. The others will afford splendid views of the apartment



in front and here and there a bit of green court. Behind the second row of buildings, views of the park will be quite limited.

The paucity in the spread of park quality which the new restrictions will actually accomplish is not due to shortcomings in the intentions of the authorities, nor to the wickedness of land owners, but solely to the nature and inflexibility of the zoning device. In a large tract this permits, and economic interests enjoin, a uniform coverage, with the maximum bulk allowed under the height and area restrictions. The obvious way of securing the widest enjoyment of park views by residents in the Area would be to have high, tower-like structures, widely spaced, distributed among lower buildings also varied in height. Then a considerable number of apartments, even at some distance from the park, would be enabled to afford views of it—views to which distance itself would add a charm. But such a result is not to be expected under our zoning practice when it is applied to a street system with blocks only 200 feet wide.

The weakness of zoning as a method of investing a residential district with attractiveness is even more strikingly illustrated by what is happening in the section<sup>1</sup> that is immediately west of zone E adjacent to the park just discussed. Here there are twenty blocks, owned by one corporation, and all in zone D. It is the largest tract in the Area under one ownership. Because of its size and central location the quality which it finally shows will dominate the character of the entire area. We know now the kind of development that is contemplated for this tract.

According to official records, on April 26, 1937, the owner of this tract had filed applications for permits to construct 163 buildings, each one to contain 112 rooms, laid out in 36 apartment suites. Counting one person to a room, the whole development would house 18,256 people.<sup>2</sup> Forty-eight structures, on corner lots, are planned to cover 75 per cent, while the majority will cover 66 per cent, of their 100 by 100 foot lots. Each interior building will be set back six feet from the lot line, have one air-shaft in front and two rear air-shafts on the sides, with a 22-foot back yard. Each building is to be six stories high and, in design, will probably be

<sup>1</sup> See map on p. 113.

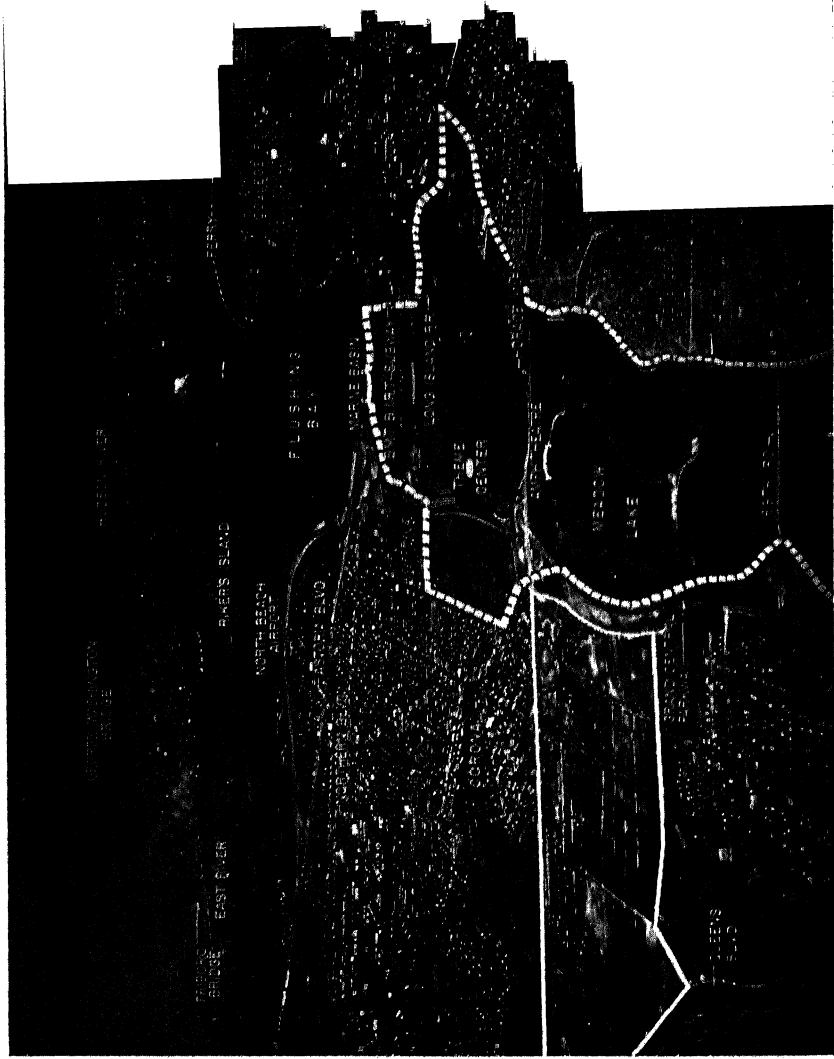
<sup>2</sup> See map showing "Land Coverage of a Proposed Apartment House Development," p. 115.



*Edward James Mathews, Del.*

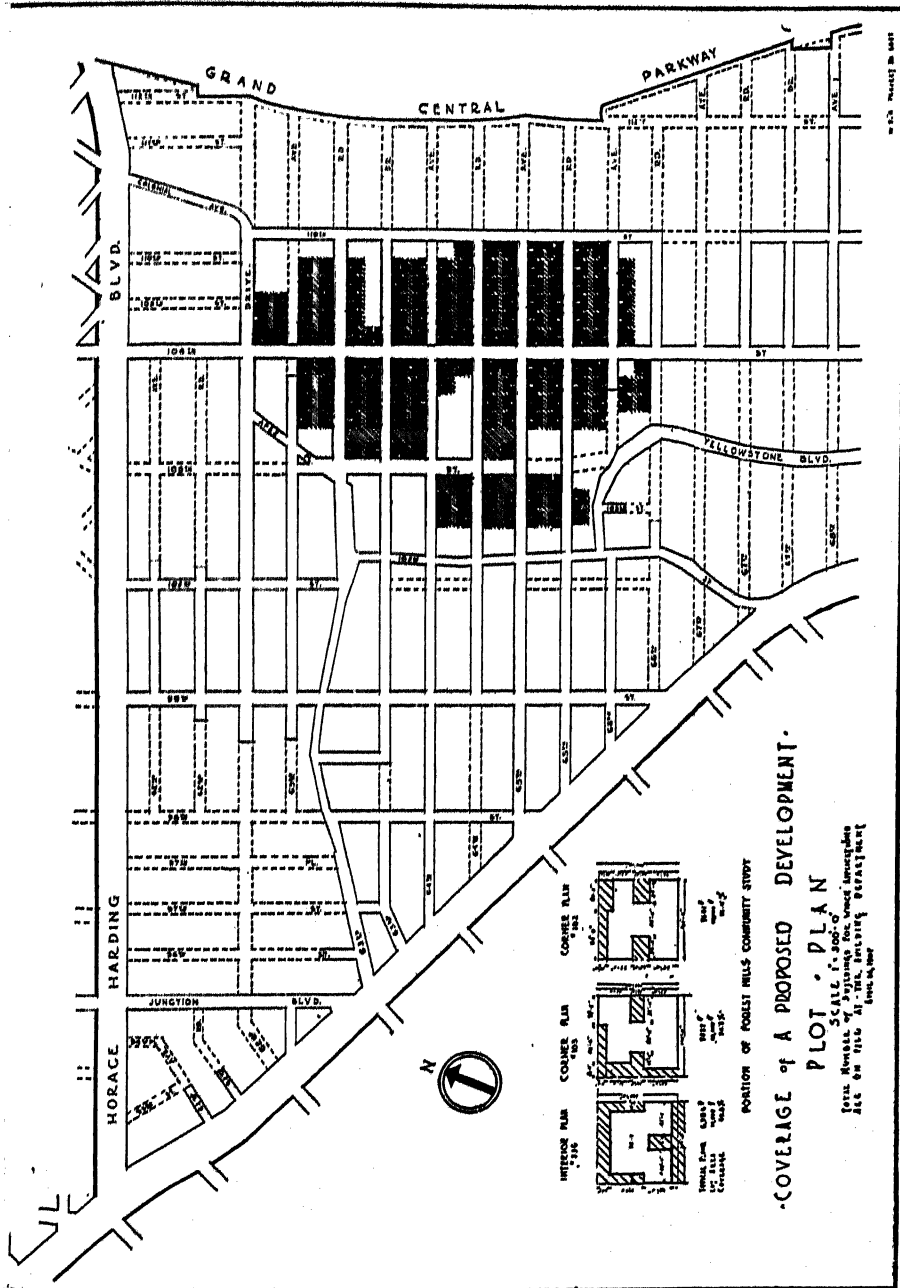
APARTMENTS BEHIND IVY-COVERED GARAGE WALLS IN PLAN B, WORLD'S  
FAIR DISTRICT

An interesting treatment of a difficult problem—residential frontage upon a busy boulevard  
See page 122



*Courtesy of New York 1930 World's Fair Corporation*

**AIRPLANE VIEW OF WORLD'S FAIR SITE AND SURROUNDING COUNTRY**  
 World's Fair site enclosed by broken line. Area studied at left bounded by unbroken white line



LAND COVERAGE OF A PROPOSED APARTMENT HOUSE DEVELOPMENT (as of April 26, 1937)  
Courtesy of WPA and the Mayor's Committee on City Planning. See page 114

## HOUSING FOR THE MACHINE AGE

just like its neighbors—for block after block. That is broadly the character of the development that is now planned for the most important tract in this Area.

In nearby vacant plots of a block size, new construction shows a tendency toward row-house types. As a rule each dwelling is two stories high and accommodates a single family. Houses front on a narrow strip of lawn, planted with bushes and cut up by walks. In the rear there is a wide, concrete driveway affording access to garages in the basements of the houses or attached to them. Each family possesses the right to use this alley and it has exit and entrance at the ends of the block. While the pavement is new, children find the alley good for roller skating. Various games, generally noisy, are also feasible in this space, despite the coming and going of delivery trucks and owners' cars.

At the present time there is one small built-up settlement—the Annadale community near the northern border of the Area—composed mainly of single-family structures, which now affords its dwellers fairly satisfactory homes. But its future must cause apprehension. It is apparently bound to be engulfed and finally absorbed by row houses, multi-family buildings, and stores.

The remainder of the Area is occupied by various structures—an ancient farm with a fine old house and well-painted barns, three groups of single-family row houses, several garages and filling stations, and miscellaneous buildings. In between these structures are vacant plots, distributed among many owners and showing a wide variety in sizes and shapes. One large area, once low and swampy, is being used as a dump and thus prepared for improvement.

Here then there will be found, some future day, single-family dwellings, blocks of row houses, groups of garden court apartments, and blocks of six-story elevator apartments, scattered about with little relation to appearance or their effects upon one another. And, unless the present zoning ordinance is changed, most of the homes in the western and northern sections of the Area will have the atmosphere of business and industry just around the corner.

*Shops.* What hope is there that in this Area, whose future has aroused such high expectations, the majority of the residents will find themselves conveniently near drug stores and groceries, and

## APARTMENT HOUSE NEIGHBORHOOD UNITS

yet not so exposed to business facades as to injure their environment? The answer depends upon the adjustment of business zones to the future population that is made now. Recent researches<sup>1</sup> indicate that one store, with a 25-foot frontage, for each 100 persons of a community, would be a liberal allowance. A generous estimate of the ultimate population of the Area is 40,000 people. On that basis the Area should be provided with 10,000 feet of business frontage. But how many feet have been actually so zoned? By careful measurement<sup>2</sup> the mapped business frontage amounts to 19,000 feet, and even that calculation does not include the section of about 40 acres at the junction of Queens Boulevard and Horace Harding Boulevard, an arterial highway leading eastward across Flushing Meadow Park, which is now unrestricted and which therefore may have stores as well as factories and dwellings. Not counting this corner, the frontage now actually zoned for business is 9,000 feet in excess of the probable future needs. If we allow 25 feet for a store, this means that the Area may some day have 360 superfluous shops.

Also the business zone, following conventional practice, is in the shape of a ribbon, 100 feet deep on two sides of the street, and it stretches crosswise and up and down the Area in such a way as to exert, in a maximum degree, a depressing effect upon the adjacent residential territory.

*Schools.* Among American families with growing children a satisfactory educational service is a matter of vital concern. Parents may move to a new address before a convenient school is built, but if it is not in sight when they actually need it they are likely to move away. Transiency on the part of tenants is one of the first and most significant symptoms of neighborhood deterioration.

Let us estimate the Area's future educational requirements, at the elementary level. If its population reaches 40,000, it will have about 6,600 children of the elementary school age. If it reaches only 30,000, there will be some 5,000 elementary pupils. In either case, at least four schools will be required to accommodate the future population, and the Area should accordingly be divided into

<sup>1</sup> See Appendix A, p. 225.

<sup>2</sup> See zoning map on p. 113. The streets bordered with shaded areas are zoned for business use. The blocks filled in with black dots are unrestricted.

## HOUSING FOR THE MACHINE AGE

four school districts with a school site located in the center of each quarter.

What are the present prospects that these four districts will be created? The city now owns one school site close to the center of the whole Area.<sup>1</sup> It is located in the *corner* of the quarter, adjacent to the Parkway, which is now held mainly in two large ownerships, and which, in view of the building plans already filed, is pretty certain to show the highest density in the Area. When this quarter is fully built up it will greatly need a large school in its center. But that desirable school location is now covered by plans, officially filed, for six-story apartment houses. Unless the Board of Education acts quickly an efficient site for this section is likely to be lost.

If the first school in this Area is located on the site which the city now owns, that action will not only prove unsatisfactory for residents of its quarter, but will make proper location of the three other schools exceedingly difficult.

This matter is further complicated by the existing use zones. Streets which will be lined with stores, and therefore congested with traffic, now divide the Area into two large, purely residential sections. While the present business zones exist there is no practicable way of dividing these two irregular districts into four efficient educational service areas. Unless, then, authorities make an early determination of school districts and bring about the zoning changes needed to fill them with adequate pupil populations, this Area is unlikely to possess finally the adequate, efficient, and safe educational service to which it is entitled.

*Street Safety.* In view of the continuing high casualty rate incident to automobile traffic, it would seem as if a residential district labeled "ideal" by city officials should somehow afford reduction of that risk within its own bounds. The main direction of pedestrian movement within the Area will be east-west, owing to the fact that there are three subway stations in its western, Queens Boulevard, border. Movement to and from these stations is possible on ten streets and these east-west streams of traffic will cross six north-south highways. Thus at sixty street junctions walkers will cross the path of automobiles. The situation, if left unchanged, can be saved from being highly dangerous to pedestrians only

<sup>1</sup> See map on p. 113.

## APARTMENT HOUSE NEIGHBORHOOD UNITS

through the voluntary, or enforced, slowing up of vehicles at every intersection, manifestly a nuisance to motorists. Furthermore, most of the residents will have to travel two sides of a triangle on their daily trips to work.

While the section is still unbuilt, the present gridiron street system could be modified by inserting diagonals and underpasses, and by eliminating some of the mapped streets. Unless something of this sort is done, there will be no reduction of the high casualty hazard that now seems in store in this Area for both adults and school children.

*Play Spaces.* Persons who have seen the detailed plans for the permanent Flushing Meadow Park and have noted the number and variety of playfields to be provided and, more especially, the two small playgrounds to be laid out close to this Area, will wonder why this subject should be included in the present list of shortcomings.

The basic reasons are plain. The two small grounds will be about a half-mile from the center of our Area, while the larger park playfields will be still more distant. Experience shows that city children will travel—as was indicated in Chapter III—on an average not more than a quarter-mile to reach a playground. Furthermore, this will be mainly a row-house and apartment house district, an area where there will be few if any yards. Such garden courts as may be found adjacent to future apartments may provide a little space for the very small children but they will not permit the noisy games of boisterous boys and girls.

On Saturdays and other holidays the park recreational spaces will attract many young people from this Area. These youngsters will, however, have to compete for the use of facilities with thousands of persons from other parts of the city, and to engage in team games they will have to come as members of a club or organization. It is plain that park facilities—magnificent as they undoubtedly will be—will not meet the Area's need for nearby spaces in which its boys and girls can enjoy informal games and sports during the short periods between afternoon classes and mealtimes and during the twilight hours that follow. When vigorous lads do not have recreational opportunities for those casual periods they are likely to injure shrubbery, attempt rude street play, or other unwholesome pursuits. The lack of nearby neighborhood play spaces is not



## HOUSING FOR THE MACHINE AGE

only a factor in delinquency—it is also a factor in the deterioration of residential districts. So far as the intentions of both authorities and land-owners are known, there is no step being contemplated which will provide adequate neighborhood play spaces within the confines of this Area.

These were the findings of the Forest Hills Committee. The conditions were so glaring that it was not difficult to put them down on paper. Various steps which would meet the more obvious evils were also apparent, but the question was: "Who would take these steps?" This was not an obscure corner of the city, hidden away from public attention. It was under the spotlight. The authorities had re-examined the zoning. Existing conditions and prospects of the Area represented the limits to which moulding of residential districts in New York City could be carried under present official and commercial practices. That was a depressing thought. It was finally decided that the Committee's suggestions could be most effectively presented in a series of steps, beginning with the most urgent and least difficult measures and leading, by stages, to those of a more novel and fundamental character.

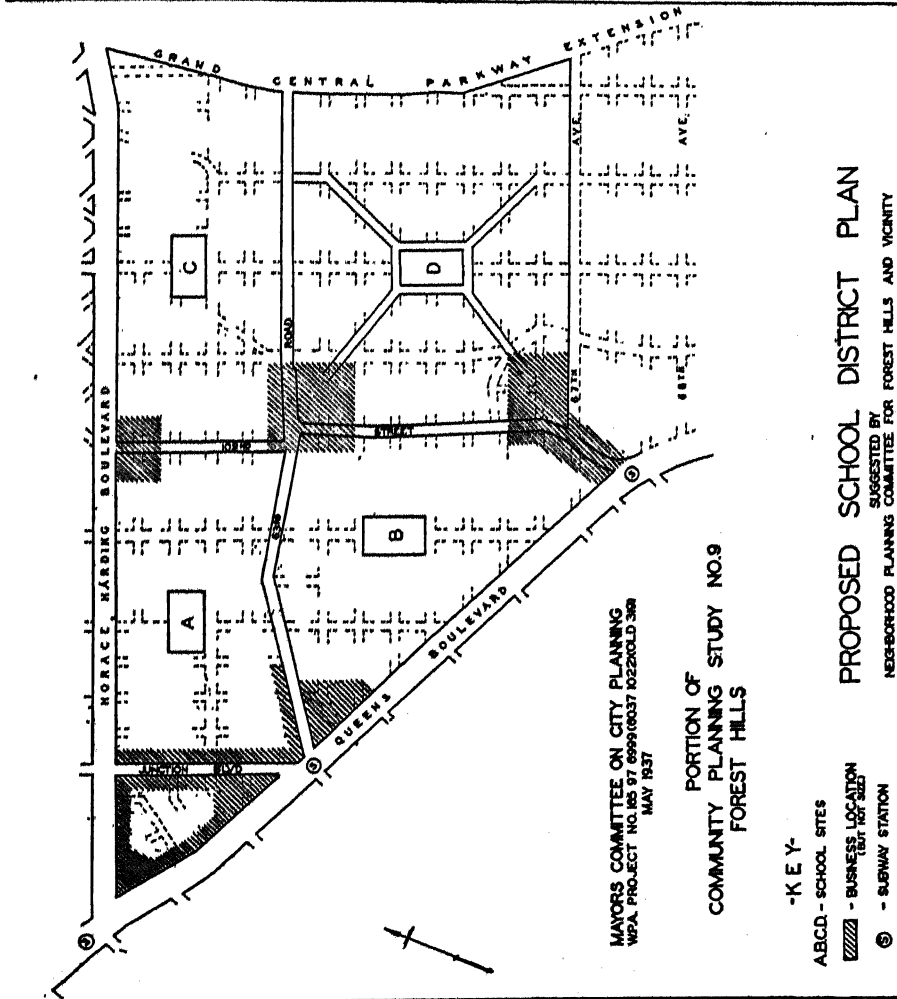
*Recommendations.* As a minimum, the Committee urged that the authorities proceed to create four school districts in the Area by taking, as soon as possible, the following measures:<sup>1</sup>

1. Exchange the school site now owned by the city for another in the center of District D.
2. Select central school sites for the three other districts.
3. Widen the boundary streets of these districts to 80 feet where necessary.
4. Re-zone the business areas so as to provide the requisite school population in each of these districts.
5. Insert diagonal streets in District D.

Through such measures functional aspects of the future developments in the Area could be greatly improved. They would not, however, dot the section with any playgrounds or spots of planted green earth. They would not reduce the heterogeneity or the monotony which now seems likely to constitute the chief characteristics of the dwellings that will eventually be erected. Because of

<sup>1</sup> See Proposed School District Plan, p. 121.

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## HOUSING FOR THE MACHINE AGE

these shortcomings and because of additional merits it embodied, the Committee urged its maximum proposal. This can be summed up in one phrase—promote neighborhood communities. Each of the four school districts should be comprehensively planned and developed. In that way only, the Committee believed, could future residents of the Area be assured compact and convenient shopping districts, an efficient school service, greater safety in the streets, and ample recreational facilities, as well as a residential character distinguished by artistic design in both architecture and landscaped grounds. An example of such planning is shown in the plot plan and perspective prepared by Edward J. Mathews for the 80-acre school district labeled "B" which constitutes the southwestern quarter of the Area.<sup>1</sup> Similar treatment could be worked out for the three other school districts shown on the map.

*The Mathews Plan (Plan B).* Around a school and ample play-field is seen an array of low walk-up apartment houses, surrounded by landscaped courts and approached by intimate driveways. Towering above the scene and widely spaced appear six 15-story elevator buildings. Bunched business districts, located at subway entrances, afford parking space and convenient shopping facilities. The internal streets, while giving access to all dwellings, would not invite through traffic and would afford safety for pedestrians and vehicles. The plan is a complete embodiment of the neighborhood unit formula.

Estimates made on completion of the plan indicated that a development corporation, undertaking Plan B, could pay, for its entire area, a price equal to one-and-a-half times the present assessed valuations; dedicate to the city all the parks, courts, and highways; build apartment houses containing over 9,000 rooms; charge from \$17 to \$20 a room for the walk-up suites and from \$20 to \$32 for the elevator rooms; pay regular taxes; ask no subsidy from the government; and yet make somewhat better than 8 per cent upon its equity. With buildings somewhat closer together, it is plain than an even lower rent scale could be obtained.

The planning study made by Robert Whitten, discussed in the treatment of open spaces in Chapter III,<sup>2</sup> revealed the wastefulness

<sup>1</sup> See p. 121. For detailed description of the land usages, acreage, and costs of the areas in this plan, see Appendix B, p. 231.

<sup>2</sup> See p. 57.



PREPARED BY EDWARD JAMES MATHEWS, AIA

*Photo by Peter A. Juley and Son*

## MATHEWS PLAN FOR SCHOOL DISTRICT B

all and low apartment structures efficiently spaced. See frontispiece and page 63



# LANDSCAPED PANEL IN PLAN B

Apartment house environment—dignified, blight-resisting

*Edward James Muiers, D.C.*

## APARTMENT HOUSE NEIGHBORHOOD UNITS

of the ordinary gridiron street system. It is interesting likewise that Mr. Mathews' study gives similar evidence upon this point. The area of the highways in Plan B is 20.54 acres, while that of the existing mapped streets for the same district is 28.45 acres—nearly eight acres additional. The area thus saved, together with a two-acre school site, make up the 10-acre playfield which constitutes the central feature of Plan B. This reduction in street surface means also an original saving in paving costs and an annual saving in street maintenance expense.

Persons familiar with the fact that immediately south of the Area there is now a fine single-family development might wonder why the Committee did not advocate a similarly open development on this tract adjacent to the park. The members of the Committee would certainly have preferred to take that course. There was, however, no practical way of changing the destiny of the Area. So many apartment houses have been built in the vicinity and are now planned for the Area—with permission of the zoning ordinance—that its character is fixed. Even the row houses now building, and those which will be erected, are going to suffer from proximity to the higher buildings and their numerous residents.

A comprehensive development, such as that proposed in Plan B, could be carried out only by a single planning and construction concern. If all land in the district were under a single ownership, proposed changes in streets and zoning could be made upon petition of the owner without much difficulty. But the parcels composing this district are now distributed among a number of owners. In view of the diverse intentions and capabilities of these owners it is very doubtful whether they could be persuaded to join voluntarily in pooling their properties and exchanging their equities for stock in a comprehensive development. Because of this fact and the circumstance that there is now no procedure by which this difficulty can be overcome, projects like that of Plan B, conforming to school district requirements, are not now practical.

We pass now to a type of development that is adapted, not to a new district, but to an old one—so old that it needs rebuilding.

## HOUSING FOR THE MACHINE AGE

### THE WINFIELD PLANS

The two development plans drawn for the suggested rehabilitation of the old Long Island settlement, Winfield,<sup>1</sup> in the Borough of Queens, now to be presented, were originally published in the monograph entitled *The Rebuilding of Blighted Areas*. In that publication Plans E and D, which were the results of careful preliminary studies, were adapted to a tract of land that had not yet become a slum but was showing symptoms of deterioration. They were offered as a means of curing blight while in its early stages. The situation analyzed and pictorially set forth in that volume was typical of New York City. Here, however, these two Winfield plans are put forward as types of developments that might be used to replace central slum districts—just outside a business center—in American cities of 200,000 to 500,000 population. Description of the New York setting will therefore be omitted and even the exposition of the plans will be condensed. Persons interested in the precise details of the section that was studied and in the more intimate financial aspects of these plans are referred to the original study. There they will also find a general analysis of blight, the three other plans A, B and C for the same area, of which D and E were perfected plans, and a discussion of the pooling of deteriorated properties.

*The Slum Problem.* The type of situation for which these Winfield layouts are here suggested can be found in most cities of 200,000 population and over. Ordinarily it is a sick district—that cannot pull itself up by its own bootstraps. The police, fire department, and hospitals are called upon for an unusual amount of service. Taxes are high and rents capricious. The various owners are powerless to rebuild because, with the high taxes and the costs of new structures, more rent would have to be secured, and the class of tenant who could afford to pay a higher rent would not care to live

<sup>1</sup> The tract consists of about 41 acres and is situated where the main line of the Long Island Railroad crosses Queens Boulevard. From Manhattan, Winfield can be reached by motor in a three-mile drive from the Long Island end of the Queensboro Bridge and by train in a ten-minute ride from the Pennsylvania Station of the Long Island Railroad at 33rd Street. For a discussion of plans for the rehabilitation of Winfield, see: Perry, Clarence Arthur, *The Rebuilding of Blighted Areas*, Regional Plan Association (architectural and planning studies under direction of C. Earl Morrow), New York, 1933, 59 pp. See also Appendix B of present study, p. 233.

## APARTMENT HOUSE NEIGHBORHOOD UNITS

in the section. Home-owners would not bring their families into that kind of environment. To make a cure, a major operation is required.

A solution of this problem such as could be accomplished by private enterprise would seem preferable to one that was dependent upon government subsidy. In the latter case nothing could be done until a legislature had appropriated the money. If commercial capital can accomplish the needed rehabilitation the public will not have to contribute. If there were a method by which private enterprise could regularly and straightforwardly work in a field of this character, the disgrace of the city slum would soon be wiped out.

Private capital must make a profit. It cannot buy land, demolish structures, and build new ones, unless it can obtain from the finished product more than it has paid out. The only way this result can be achieved is by increasing the load upon the land—that is, by erecting multi-family dwellings. It is obvious that it would be impractical to build and find tenants for fine, single-family homes in an average, near-downtown, blighted area.

If success in attracting a higher income class to a slum section is to be assured, natural objections to the locality must be overcome and advantages superior to those possessed by their present living quarters must be set up. Clients must be offered an environment in which streets are tidy, window vistas attractive, and parks inviting. Qualities must be outstanding and spread over a sufficient area to give the district a distinctive name. When residents give their address they would like to feel that it represents them—their personalities and their tastes. Can it be done? Is it physically possible to transform a slum district so completely that it loses its evil reputation and gains an attractiveness greater even than that possessed by the sections in which the higher income classes now live?

Manifestly this is a large order, but American ingenuity and constructive imagination have filled bigger ones. Let us examine an architectural and planning study designed to meet the above requirements.

These plans are not put forward as economically suitable for former slum-dwellers. Proper housing for them is an important



## HOUSING FOR THE MACHINE AGE

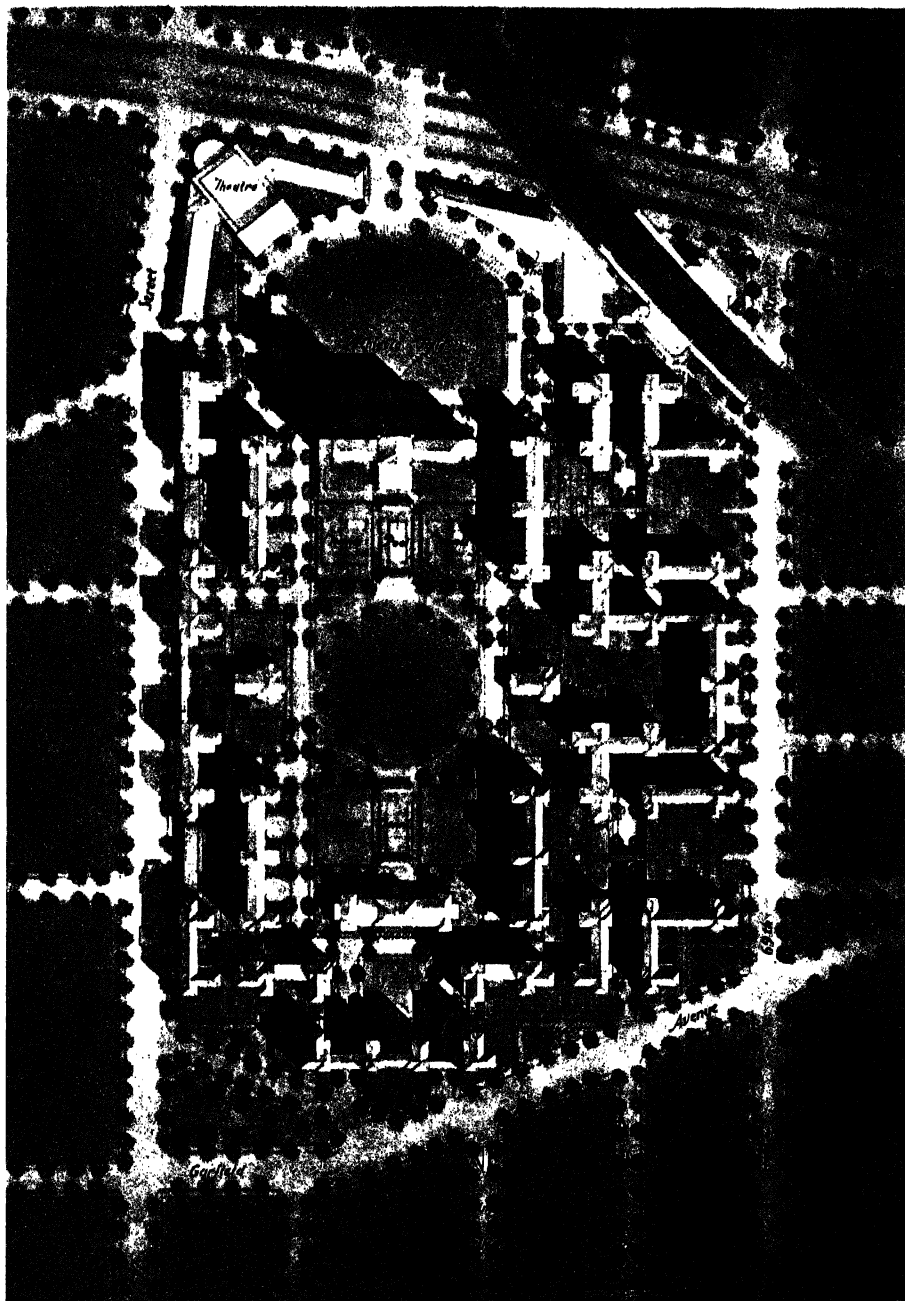
matter and it will be discussed in Chapter VIII on cheaper and better dwellings.

*Plan E.* The layout, labeled "Plan E" in the Winfield development study, in the book referred to, *The Rebuilding of Blighted Areas*, is next shown. Its area, including one-half of the bounding streets, is 41.47 acres, and it provides accommodations for 5,000 people. There are three shopping districts, one containing a motion picture theater. Community facilities include a school, chapel, branch library, boys' and girls' playgrounds, tennis courts, an athletic field, an outdoor pool, and a common. Apartment buildings are as a rule nine stories high and only 30 feet deep—thus permitting cross-ventilation for the suites. Most are built around rectangular courts, 90 by 190 feet. One side of this court is usually left open, sometimes two sides. Where two structures face each other 90 feet apart, one is generally a low, three-story building. Six of the apartment courts are terraced and beneath them storage for automobiles is provided.

The athletic field has been placed at one end of the development, away from the apartments, so that noise from the games will not disturb residents. Between this field and the pool is a tower building, in the basement of which are locker facilities for both players and swimmers. Passageways under the field stadium afford convenient access to these facilities. The high tower building serves several purposes. In the first place it forms a sheath for the smoke-stack of the central heating plant. It contains also one- and two-room residential suites and the meeting place for a local athletic and social club. Besides a ballroom and restaurant, it provides a bowling alley, billiard room, and rooms for popular games.

A special internal street system of 50-foot highways is provided. These give access to all apartment and community buildings. But they do not encourage rapid driving. No road crosses between the school and the central open zone. Streets continuous with outside highways are arched over by buildings and come quickly to sharp turns within the development. Traffic lights would control cars on the two north-south highways, paralleling the central zone.

The space devoted to recreational purposes in this layout amounts to 8.37 acres, or over 20 per cent of the total area. The athletic field is 2.76 acres, the school playgrounds 1.60 acres, while the com-

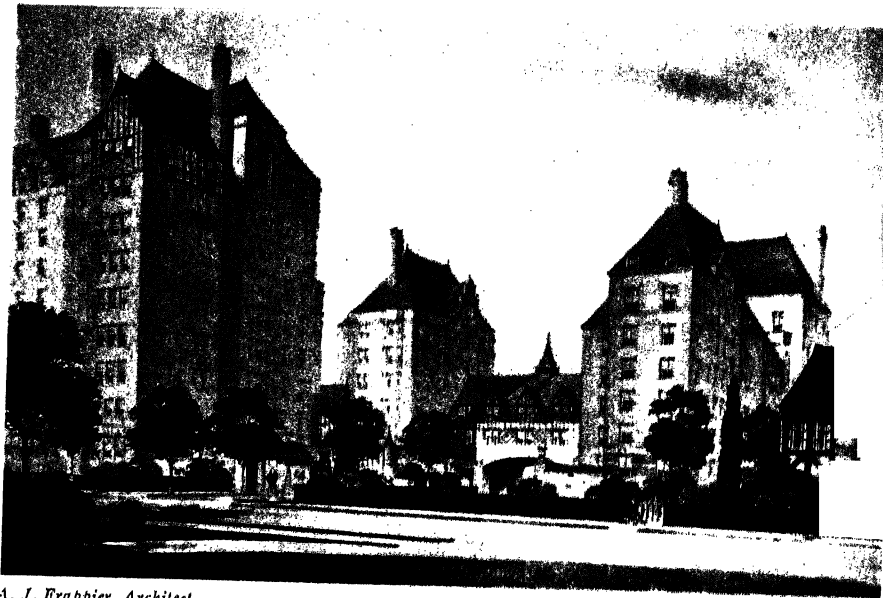


*A. J. Fruppier, Architect*

*Courtesy of Regional Plan Association*

### WINFIELD STUDY—PLAN E

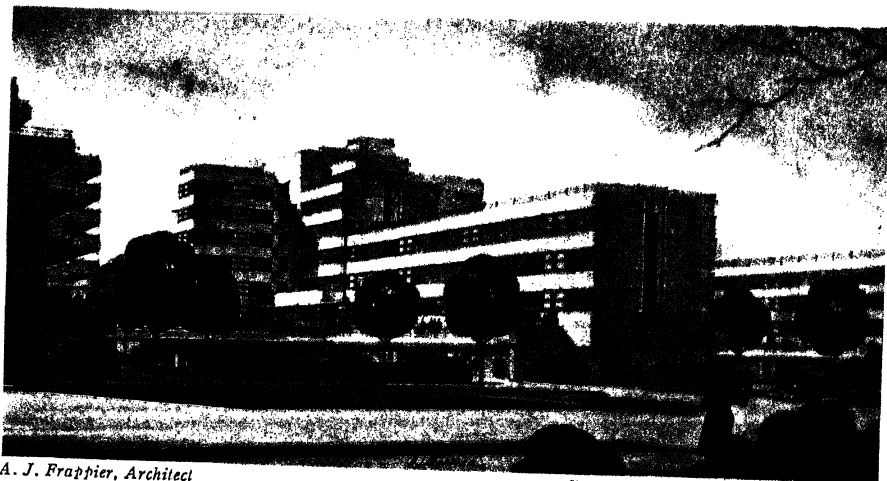
A 41-acre apartment house neighborhood unit suggested for rebuilding blighted area



*A. J. Frappier, Architect*

*Courtesy of Regional Plan Association*

Plan E—Nine-Story Buildings and Some Three-Story Structures Arched Over Streets



*A. J. Frappier, Architect*

*Courtesy of Regional Plan Association*

Plan D—Six-Story Elevator Buildings with Three-Story and Basement Extensions

TYPICAL APARTMENT STRUCTURES THAT FEATURE THE WINFIELD PLANS

## APARTMENT HOUSE NEIGHBORHOOD UNITS

mon is just over, and the tennis courts and pool just under, two acres. The same actual area in Winfield contains no public play space.

With a land cost (including demolition of existing structures) computed at about \$2.00 per square foot, with construction and maintenance costs at then current prices, with no subsidy, and the properties paying the usual taxes, it was computed that apartments could be let at \$21 per room per month and the project would earn a 7 per cent dividend on the equity. If the rent were \$25 per room—a much fairer figure considering the quality of the accommodations—the dividend would be boosted to about 10 per cent. The detailed financial setup will be found in Appendix B.<sup>1</sup>

Of course, nine-story dwellings for cities in which apartment houses have hardly appeared would be unthinkable. But even in the places where people are accustomed to three-story and six-story dwellings, this scheme could be imitated in a plan that incorporated these principles with suitable new details. The population, for example, could be 3,000 instead of 5,000, and then the buildings would not be so high and the total area not so large.

To illustrate the flexibility of the unit scheme, another study of the Winfield area is offered. It was called Plan D in the original monograph, and is shown opposite page 128.

*Plan D.* Here we find the same 41 acres devoted to an even greater density—6,000 population—but again the controlling considerations in arrangement of dwellings are open spaces and light and air. The typical building has two parts: (1) a six-story structure with elevators, and (2) a three-story and basement walk-up extension. The central open space is shaped like a funnel and along its edges buildings are set back in such a way as to increase the number of apartment windows receiving the oblique rays of the sun. There are five suites on each floor of the tower and all are penetrated by the sunlight at some time during the day. The extension is only 30 feet deep, so all rooms enjoy cross-ventilation. It is true that only the southern suites receive the sun, but since these extensions are only 40 feet high and are separated by courts 90 feet wide, even the northern suites receive an unusual sky illumination.

<sup>1</sup> See p. 234.

## HOUSING FOR THE MACHINE AGE

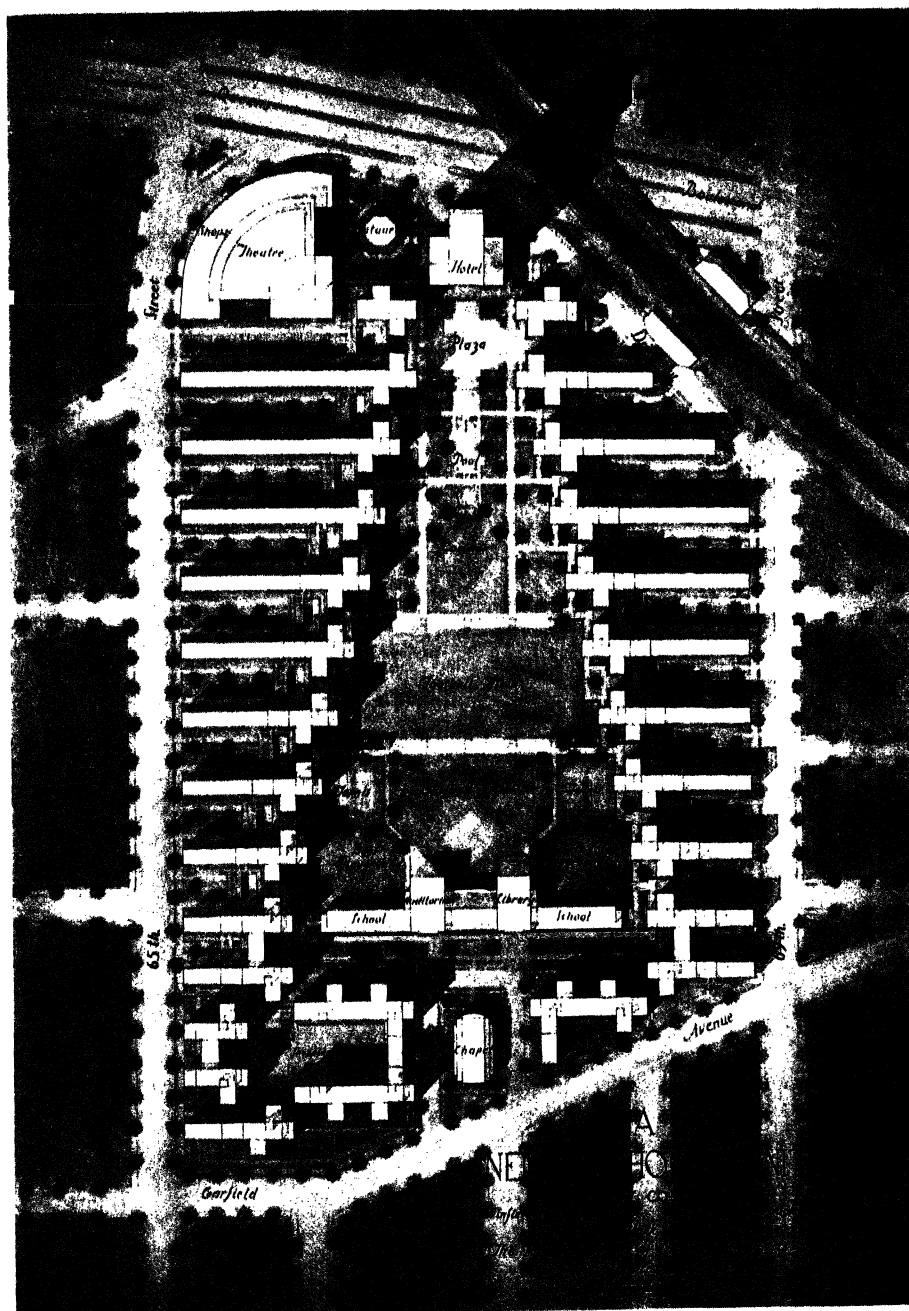
Courts are landscaped and provided with driveways by means of which vehicular access is obtained to all buildings. Garage space is available in all basements. No vehicular highway crosses the open-space zone.

The recreation layout provides for practically the same activities as in Plan E, but is increased to 9.15 acres. The football gridiron is here in the center of the development. At first thought, a noisy activity so close to apartments would not seem a good arrangement. It certainly is not ideal. However, the six adjacent buildings will be most affected. Some people are not only immune to the shouts of the crowd but like to have front, grandstand seats where they can see what is going on. Such people by preference will probably select suites overlooking the gridiron. Objectors to the athletic carnival will be able to find plenty of accommodations looking out upon quieter scenes. All play spaces are completely protected from the hazards of automobile traffic.

Again there are planned shopping districts at the two ends of the development, but in this plan residents can walk along covered passageways, connecting all the buildings, from one district to the other. The library building is part of the school plant and the chapel is at the end of the development, where it would be convenient to outsiders as well as residents. The tower building is in the same location as in Plan E and serves as a sheath for the central smokestack as well as an indoor social center.

With the same land costs as figured for Plan E, and no subsidy, it was computed that an average monthly rent of \$14.50 a room for the apartment suites and of \$26 for the larger and more attractive Tower rooms would, together with the income from garages, stores, theater and other sources, enable the owning corporation to meet all carrying charges and earn a dividend of 7 per cent on the equity. For details, see Appendix B.

Less expensive to build than Plan E, this development would still afford the same self-contained community life, rich in social and recreational opportunities and completely sheltered from the traffic and intrusions of the outside business world.

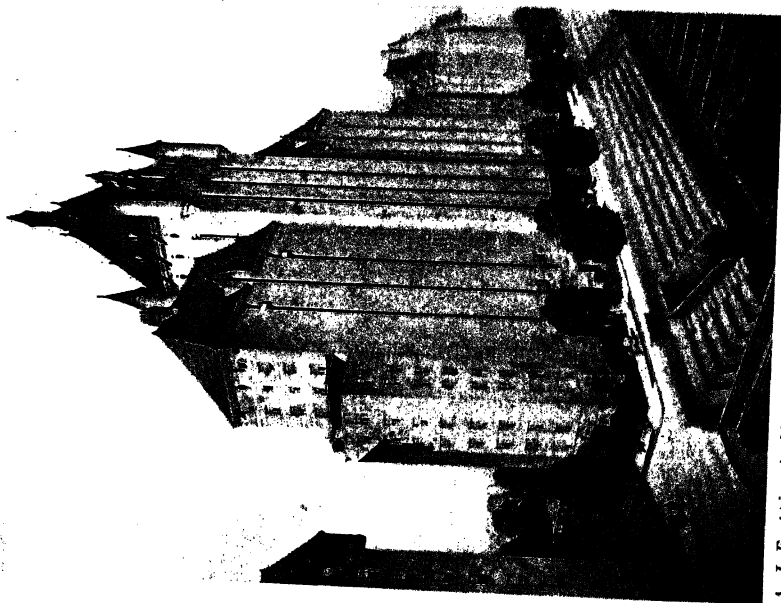


*A. J. Frappier, Architect*

*Courtesy of Regional Plan Association*

# WINFIELD STUDY—PLAN D

A low-cost treatment in which generous open spaces contribute both amenity and recreational opportunity



*A. J. Frappier, Architect*

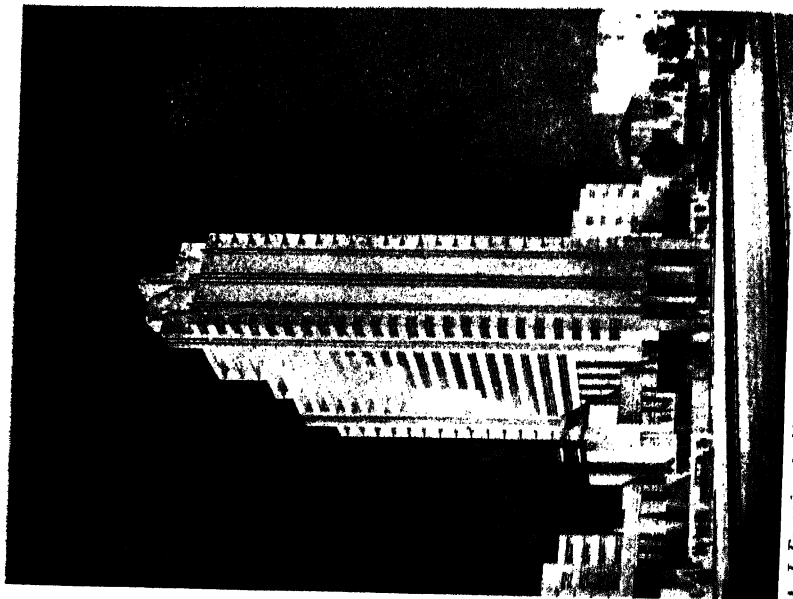
*Courtesy of Regional Plan Association*

PLAN E

## TOWER BUILDINGS

PLAN D

Each structure sheathes the smokestack of a central heating plant and provides one- and two-room apartments, as well as facilities for a social and athletic club



*A. J. Frappier, Architect*

*Courtesy of Regional Plan Association*

## APARTMENT HOUSE NEIGHBORHOOD UNITS

### REPLACING METROPOLITAN SLUMS

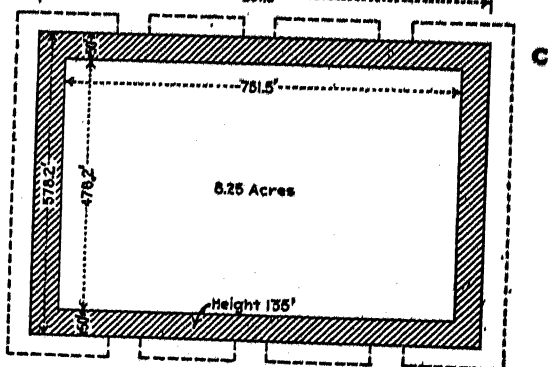
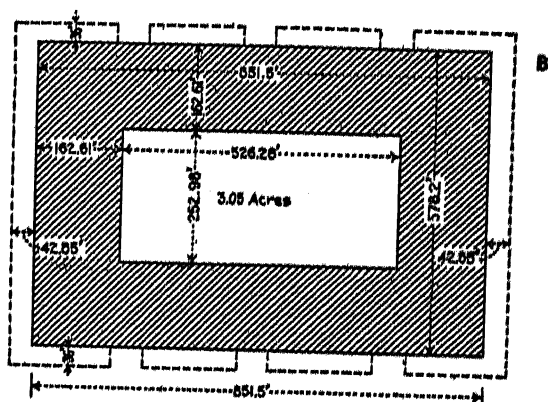
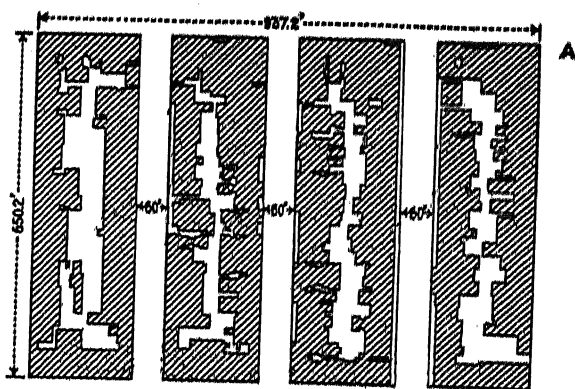
The two final plans to be presented—the four- and five-block apartment house units—are applicable only to cities like New York and Chicago, and some citizens of the Illinois city would doubtless prefer to see them confined to the eastern seaboard. They are shown here because of their possible interest as pictures of a compact school district. Also they bring out in bolder relief the broad principle underlying scientific slum rehabilitation. It is that of affording residents greater access to open space. It can be accomplished in two ways. Let us illustrate.

On page 130 is a chart composed of three diagrams. The top diagram contains four rectangles traced from the city's official real estate map which represent conditions in four actual East Side blocks. The shaded portions show the land that is covered by tenements. The irregular white areas indicate the courts. These open spaces—plus the sidewalks and streets—are playgrounds of the tenement children. The courts are the flues—the only channels—by which air and light can reach the inner rooms of these dwellings.

The middle diagram resulted from two simple calculations. Its central rectangle, marked "3.05 acres," represents the sum of the four courts shown in the top diagram. The shaded area in the middle diagram is the sum of the four areas in the top diagram which are covered by buildings. The area of the three intercepted streets is shown by the broken lines in the middle diagram. In a word, there is represented in the middle figure precisely the same amount of building-covered land as there is in the four actual blocks, and precisely the same amount of open space.

Let us compare the utility of the open space in the two forms. Picture to yourself an occupant in one of the interior rooms in the top diagram. Imagine the limited cube of air through which he looks in gazing at the opposite wall. Now transport him and his present cube of air to an interior room in the middle diagram. Here he can look through not only his own cube but the whole series of cubes between him and the opposite building. Obliquely also the distance his gaze can travel has been increased. Similarly the neighbors at right angles to him can look through his cube and the whole series in the same straight line.





- A Actual plan of four New York City blocks.
- B Diagram showing building bulk at same height as A with indicated setback from streets and over three acres of open area at center.
- C Diagram (not a proposed plan) showing possible disposition of apartment house perimeter at height of 135 feet. There would be 8 1/4 acres of open space for parks, gardens and recreation.

### STUDY IN COVERAGE

Reproduced from New York Regional Plan, volume 7

## APARTMENT HOUSE NEIGHBORHOOD UNITS

Think now of 100 children turned loose in each of the four courts in the upper diagram and of the limited play opportunities they would have. Take the same 400 children and admit them to the 3.05 acres in the middle diagram. Consider the number and variety of games that are now open to them and were out of question in the narrow courts. The truth is that, in play, one individual never can occupy all his allotted space. If the area he is not using is so located that others can occupy it, he and all his playmates have a greatly increased play opportunity.

In a word, the usefulness of a large combined open space is much greater than the sum of the utilities of the constituent parts when each is by itself. Achieving this increased open-space value is one of the essential processes in slum rehabilitation.

The other process has already been mentioned but it is freshly illustrated by these diagrams. A discerning person, examining closely the middle diagram, might exclaim: "Well, the tenant of a room facing the inner court might have a grand vista. But just look at the building you have. It is 162 feet deep. It would have a lot of rooms from which there would be no view at all!"

That objection is justified. How can it be overcome? The tenements in the top diagram are all five stories high. That is, the third dimension of the total building volume is 50 feet. We can now compute the total cubic feet in the flat figure that represents the total bulk of the four tenements in the top diagram. Let us take this total building volume and turn it over on the side so that its 50-foot dimension is on the ground, and then run it up into the air until we have the same cubic contents as in the middle diagram, or in the sum of four top diagrams. The result of this operation is shown in the bottom diagram. We now have a building 50 feet wide and 135 feet high, running around the rim of the combined plot. In this transformed building there would be two rows of suites. The outside rooms would command views of the street, while the inside ones would look out over 8.25 acres of land! Thus again we see the *uncovering* effect of vertical construction as compared with the horizontal method.

Of course, no one in his senses would ever erect a building like that in the bottom diagram. The full vista and recreational values it exhibits could never be realized in a practicable development.

## HOUSING FOR THE MACHINE AGE

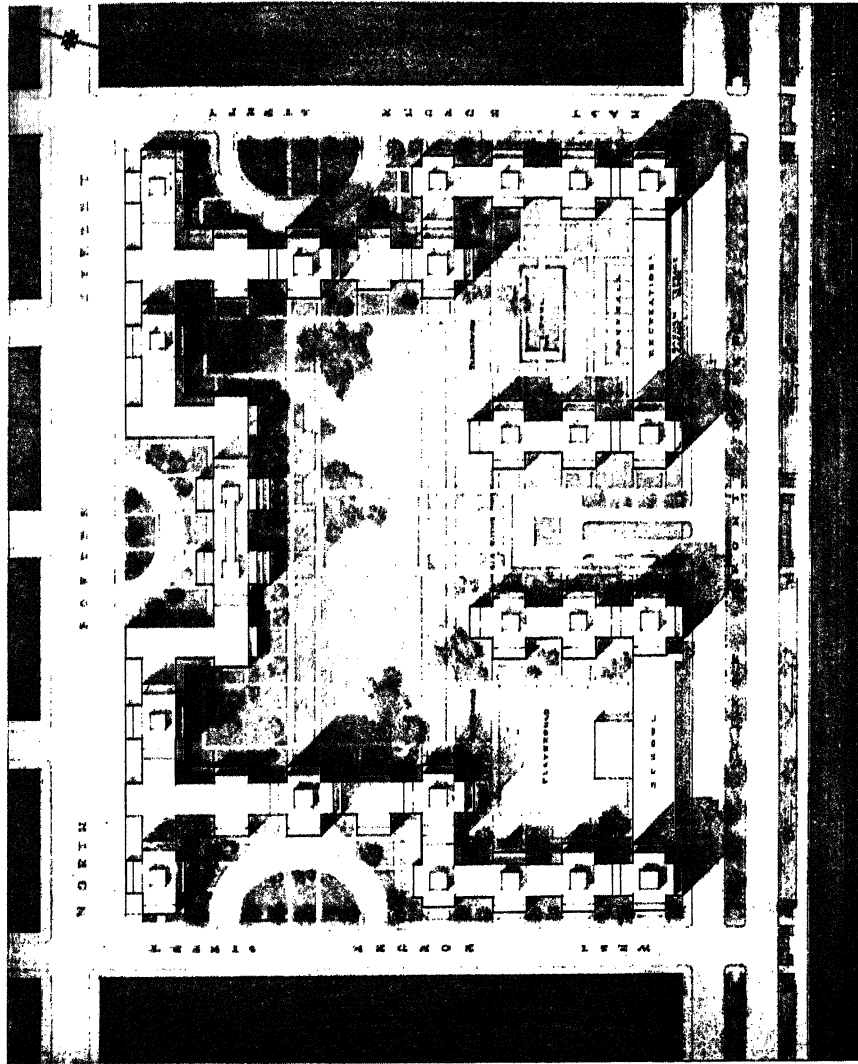
But the principles illustrated do have a validity in slum rebuilding, and we pass now to two other theoretical plans in which they were applied. These studies, as has been stated, are based upon blocks and streets having the dimensions of blocks and streets existing in the lower East Side of New York City, but they do not otherwise refer to actual locations.

*Four-Block Neighborhood Plan.*<sup>1</sup> The ground plan of this scheme, a development for the lower East Side of New York City, is shown opposite. The plot, 670 by 940 feet, contains 14.4 acres. The buildings planned would cover 4.7 acres, leaving 9.7 acres (two-thirds) in open space. Much of this uncovered land is devoted to landscaped set-backs, entrance courts, and nooks made by building wings. Still, there are the main garden of four acres, a school playground (.35 acre), an outdoor pool, six handball courts, two children's play areas, and a garden terrace in front of the special recreation building. Four external courts afford vehicular approach to the buildings, but there would be no traffic inside the development. While some garage space would be provided underneath the terrace of the recreation building, most cars would be stored in basements.

An idea of the openness that can be created in the process of rebuilding a congested district is afforded by the perspective of buildings shown on next page. We see 9 towers of 21 stories, 4 of 16 stories, and some lower structures of 7 to 10 stories. At the two north corners there are one-story extensions devoted to stores. The tower form of structure makes possible an efficient type of floor layout. A single elevator shaft serves a cluster of suites with the minimum amount of foyer space. And most suites have some windows commanding extensive vistas in more than one direction, while practically all rooms are of the "outside" type. All towers possess penthouses, and there are many set-backs which afford deck space. Each tower roof would exhibit a garden.

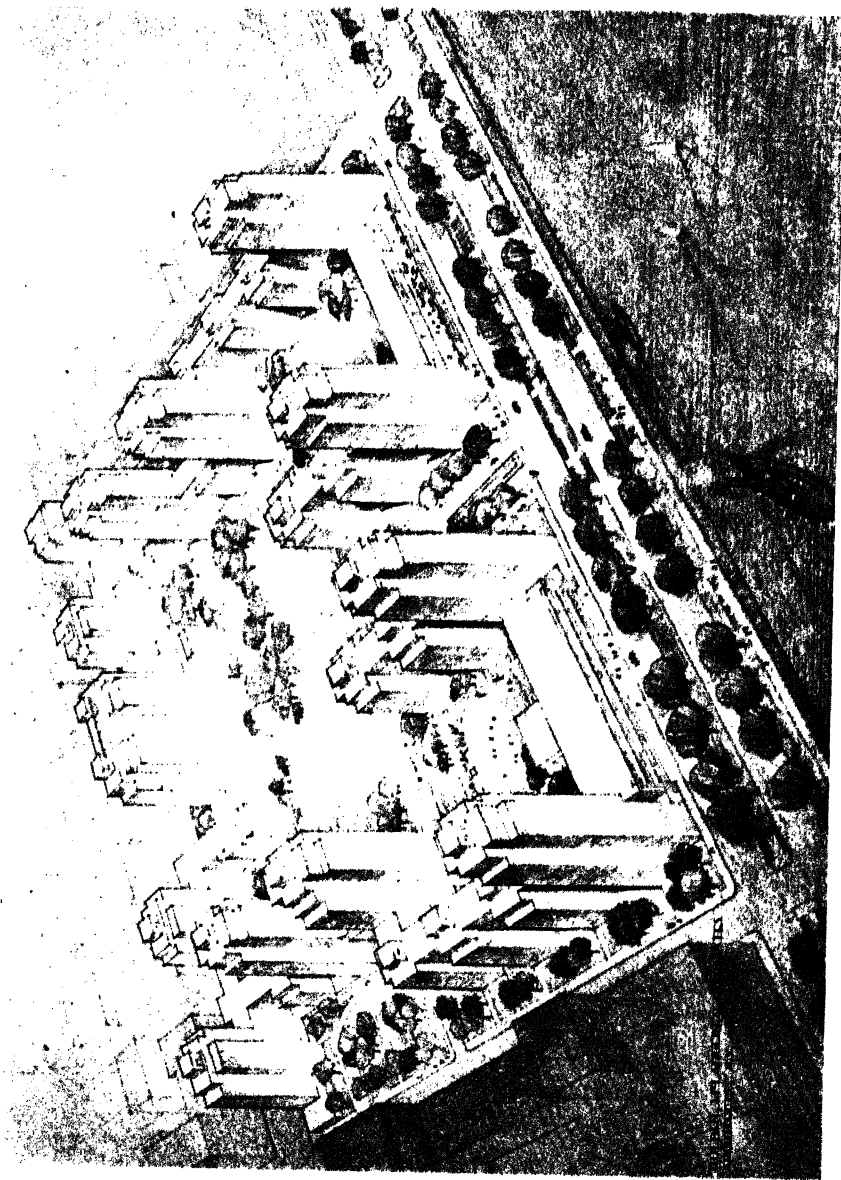
There are 8,060 rooms distributed among 1,748 suites. The latter range from 2 to 7 rooms, while the average is 4.6 rooms, accommodating 3.6 persons. The suites are planned for a population of 6,338 persons. Somewhat under 1,000 of these would probably be of elementary school age. For them a school is provided in the

<sup>1</sup> See Appendix B, p. 235.



GROUND PLAN OF FOUR-BLOCK APARTMENT HOUSE NEIGHBORHOOD UNIT

A study in open space obtained through vertical construction



**PERSPECTIVE OF FOUR-BLOCK APARTMENT UNIT**  
Sun-lighted apartment houses, school, play space, and stores without traffic hazard

## APARTMENT HOUSE NEIGHBORHOOD UNITS

development, having an auditorium and other features of a modern school plant, with the exception that the gymnasium is included in a separate recreation building. Marching to and from the main building would afford exercise to the classes in physical education, and an underground passageway would provide protected access during inclement weather. This separation of the recreation rooms from the auditorium and classrooms makes it possible to have noisy indoor sports evenings without interfering with the quieter and more studious occasions in the other building.

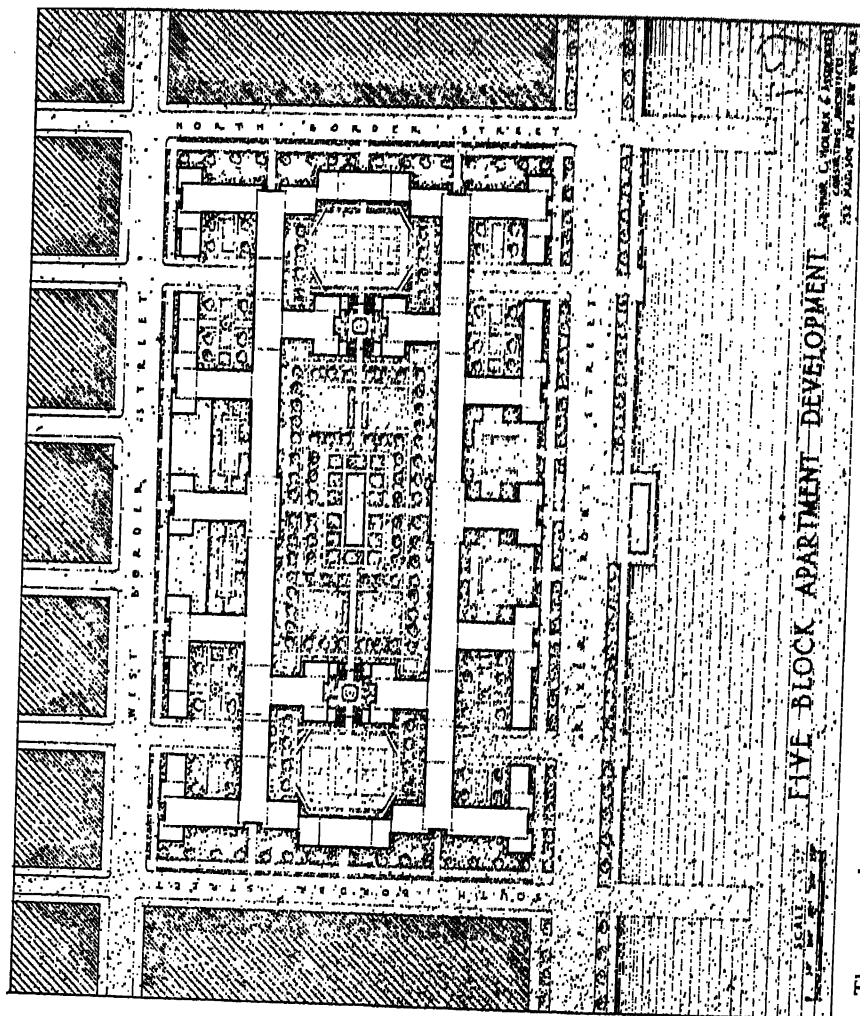
Provided that land could be obtained at \$8.00 a square foot, the architect estimates that the rental need average only \$32 per room, or \$147 per suite. For fuller financial details see Appendix B.

*Five-Block Unit.* The next page exhibits the ground plan of a five-block apartment house unit.<sup>1</sup> The area of the five blocks and four cross streets comes to a little over 19 acres. Two of the intercepted streets are closed and the land in their beds is appropriated for the development. The two other cross streets are left undisturbed except that they pass under two interior courts, which are elevated 20 feet for that purpose. The area of the three central courts is 5.3 acres, and as planned they would be devoted to both playgrounds and formal landscaped gardens.

The perspective of this plan, shown on page 136,<sup>1</sup> reveals an immense structure with two main ribs running almost north and south. They are set back 130 feet from the boundary streets and that space is divided up by abutting ribs. The building heights range from two and three stories on the boundary streets to 10 in the abutting ribs, 15 in the main ribs, and 33 stories in the two towers. The width of all structures is 50 feet, so that suites of two-room depth are possible throughout the building. Many of the roofs could be devoted to penthouses and gardens. Since most of the windows in this development would look out upon one of its own facades, there would be a motive for supplying pleasing proportions and embellishment in the design of the exterior—a motive that is not found in the ordinary apartment house district, where it is generally a building in another development that provides the view for a tenant.

<sup>1</sup> Additional details regarding this plan can be found in the New York Regional Plan, vol. 7, pp. 42 and 108.

# HOUSING FOR THE MACHINE AGE



Three central courts contain 5-3 acres; the two end courts are elevated to admit passage of streets

Reproduced from New York Regional Plan, volume 7

## APARTMENT HOUSE NEIGHBORHOOD UNITS

This structure would furnish suites (averaging six rooms) for 1,000 families with children. In addition there would be space for a hotel (mainly for guests of residents), an elementary school, an auditorium, a gymnasium, handball courts, locker rooms, and other athletic facilities. One of the smaller central courts could be devoted to a swimming pool. The ground floors at certain convenient points could be assigned to shops. Storage for automobiles could be arranged for in vertical garages in an adjacent street, if that fitted in with local conditions; or a vertical garage could be built in as an integral part of this unit.

On a site costing not over \$9.50 per square foot, the architect estimates that the annual rent in a project of this sort would run from \$1,800 on the lower floors to \$5,000 and over above the tenth floor, with an average for the development of \$3,100 per suite. For a fuller discussion of land and construction costs, the reader should turn to Appendix B.

Obviously, this kind of housing is suited to a higher income class. It is not practicable, in New York, for example, unless it can attract wealthy family men whose offices are in the Wall Street district. It all depends on whether or not the advantages it offers would weigh with them. The new East River Drive, connecting the lower East Side with upper Manhattan, together with the various uptown tunnels and bridges, would afford pleasant motoring access to their apartments after the country weekend. Large numbers of them could walk between office and home. A handball court and a swimming pool would be conveniently at hand. The formal garden could be used for after-dinner conversation.

With their guests they could watch a play put on by their own young people in the stage-equipped school auditorium, or enjoy an entertainment prepared by their own committee. They could do all these things without bothering with a car. When they wished to attend the opera or other outside functions they could drive uptown with little annoyance from traffic. Their children would not have to be transported to school. That institution would be right under their eyes, and through a committee of their own they could watch over and influence its direction.

In the World's Fair and Winfield studies, boundaries of the respective plots were located in reference to school district require-



## HOUSING FOR THE MACHINE AGE

ments. The lower East Side units were not definitely placed, but if ever they become actual projects their boundaries will have to be fixed by the same rule. Since both the precise location and the extent of actual projects, similar to these theoretical studies, would be determined by city planning considerations, it follows that in carrying them out it would be necessary to acquire all parcels making up a plot. Changing a boundary, or even omitting a single 50-by 100-foot lot, would seriously damage if it did not completely destroy a project.

In a word, acquisition of one of these neighborhood unit plots becomes a problem on the order of that presented by the purchase of a military reservation, a public park, the site of a courthouse or that of a public high school. Experience has shown that purchase of the land required by such purposes in an economical way cannot always—or even generally—be accomplished through private negotiation. For that reason all these purposes have been granted aid of the eminent domain power of condemnation. For the same reason the planning and development of residential sections by neighborhood units—if they become an actuality—will require the instrumentality of condemnation. A method of applying this power is presented in the following chapter.



PERSPECTIVE OF FIVE-BLOCK APARTMENT DEVELOPMENT

School, gymnasium, auditorium, shops, tennis courts, children's playground, and suites for 1,118 families

## VI. ASSEMBLAGE OF THE UNIT PLOT

HAVING described several kinds of housing projects for which large plots are essential, we now take up the discussion of governmental procedure whereby, it is believed, capable construction corporations could acquire such plots and carry out the projects.

In the proposed regulation of land subdivision to produce single-family neighborhood unit developments,<sup>1</sup> it was not found necessary to bring all parcels under a single ownership. After the common spaces had been mapped and the remaining land divided into lots it was possible to assign to each owner his share of the property in the form of lots, in practically the same location as his original plot, upon which he could build as he pleased within certain restrictions. It was true that even in this case economies and increased values in design and construction could be obtained from a unitary handling of the entire tract. But comprehensive control was not in the nature of the case necessary.

In multi-family unit developments, on the other hand, a complete merger of all the parcels is physically obligatory. This fact will become evident in a close examination of the apartment house plans shown in the preceding chapter. The open spaces and changed highways which they exhibit could not be obtained without obliterating completely the original lot and street lines. Property boundaries would be destroyed in the pooling and it would not be feasible to set up new ones. Of course, a rebuilding scheme of a less rigid character is possible. Conceivably, a pattern making use of existing blocks and streets might be worked out which, in a fortunate case, would permit the leaving of property lines intact or the drawing of new ones. Conventional apartment houses with small garden courts could be constructed by different builders on a number of cleared blocks. But such a plan would not be so compact, would not achieve the maximum efficiency from open spaces nor be so successful in creating a neighborhood community as would a scheme under single management. Furthermore, to secure

<sup>1</sup> See Chapter IV, p. 99.

## HOUSING FOR THE MACHINE AGE

the architectural dignity that a large development deserves, there must be freedom to deal with structures of varied heights and to arrange building masses in a way that would make each unit a functional member of the total design. A fine apartment house district could hardly be produced by a number of owners, each acting independently.

In the case of a unit subdivision, the act that gives it permanent effect is its incorporation in the official city map. Where the territory is raw acreage it would introduce a new section in the city map. In the case of apartment house units, in all but exceptional instances, a *remaking* of part of the official map will be involved. Since an official map is composed mainly of the boundary lines of public and private properties, it can be changed only by formal legal procedure. It is that procedure for changing an official city map which is proposed as the machinery to effect assemblage of the properties required in a multi-family neighborhood unit.

Under existing practice all new private housing developments are initiated by the owners or controllers of plots of land. The settling of several hundred families on a certain tract may choke a school district, congest a subway line, or overload street utilities. It happens, nevertheless. Just as in the case of a subdivision scheme, a housing project may cover too little land or be too irregular in shape to permit the dedication of a playground or the elaboration of a special internal street system with more economical public utilities and greater safety for pedestrians—still it becomes part of the city's residential fabric. The location and size of housing developments are vital to the adjustment of dwellings and public services and to the attainment of all the objectives of purposeful city planning and city building. But they are not now under the control of any agency devoted to public welfare. Establishing such control, in regard at least to one large class of developments, is an early measure in the procedure now to be discussed.<sup>1</sup>

### STAGES IN THE ASSEMBLAGE PROCEDURE

*Demarcating Unit Boundaries.* The first step in the evolution of a neighborhood unit project under this scheme is the drawing of

<sup>1</sup> This entire procedure has been more briefly set forth in an article by the author, entitled "A Method for Private Enterprise to Rebuild Cities," which appeared in the *Architectural Record*, vol. 81, January, 1937, pp. 11-17.

## ASSEMBLAGE OF THE UNIT PLOT

its boundaries upon the master-plan map of the city. That does not put it upon the official city map, but simply starts it on its way to that map. The act is performed by the city planning commission, and thus the location, size, and character of an important addition to, or change in, the residential element of the city are controlled in the public interest.

In determining the general region where a unit demarcation is to be made, the planning commission can make use of all its conclusions—based on wide and careful preliminary studies—as to the sections where an increase in population is desirable. Having settled on a region, it looks about for an area within it, already bounded by main highways or about which useful arterial highways could be drawn, and which is large enough to contain the population required for one elementary school when housed at a desirable density. The possible ranges in population and housing density, as we have seen, are so wide that considerable discretion can be exercised in determining the size or area of a unit. But before any single demarcation is fixed, its effect in determining the boundaries of adjacent units and other use districts is examined. Not only should a whole cluster of units be equitably apportioned, but their land qualities and market prospects should also be studied. Thus a section suitable for a high-class development might present a problem. Should it be kept intact or portions of it be cut off and added to adjacent units? Obviously, the course to be taken is that which would produce the highest total value for that group of units.

In the case of a subdivided and partly improved region, like the World's Fair district described in the preceding chapter, the determination of the size and density of multi-family units would be complicated by the existence of structures not old enough to justify demolition. Compromises would be necessary. The kinds of research which would have to be carried on are illustrated by studies of the World's Fair and Winfield districts already mentioned.<sup>1</sup> They are not set up as models but they may be regarded as suggestive of method.

Planning and economic studies will also be acutely needed in connection with the replotting of central slum areas. Before any

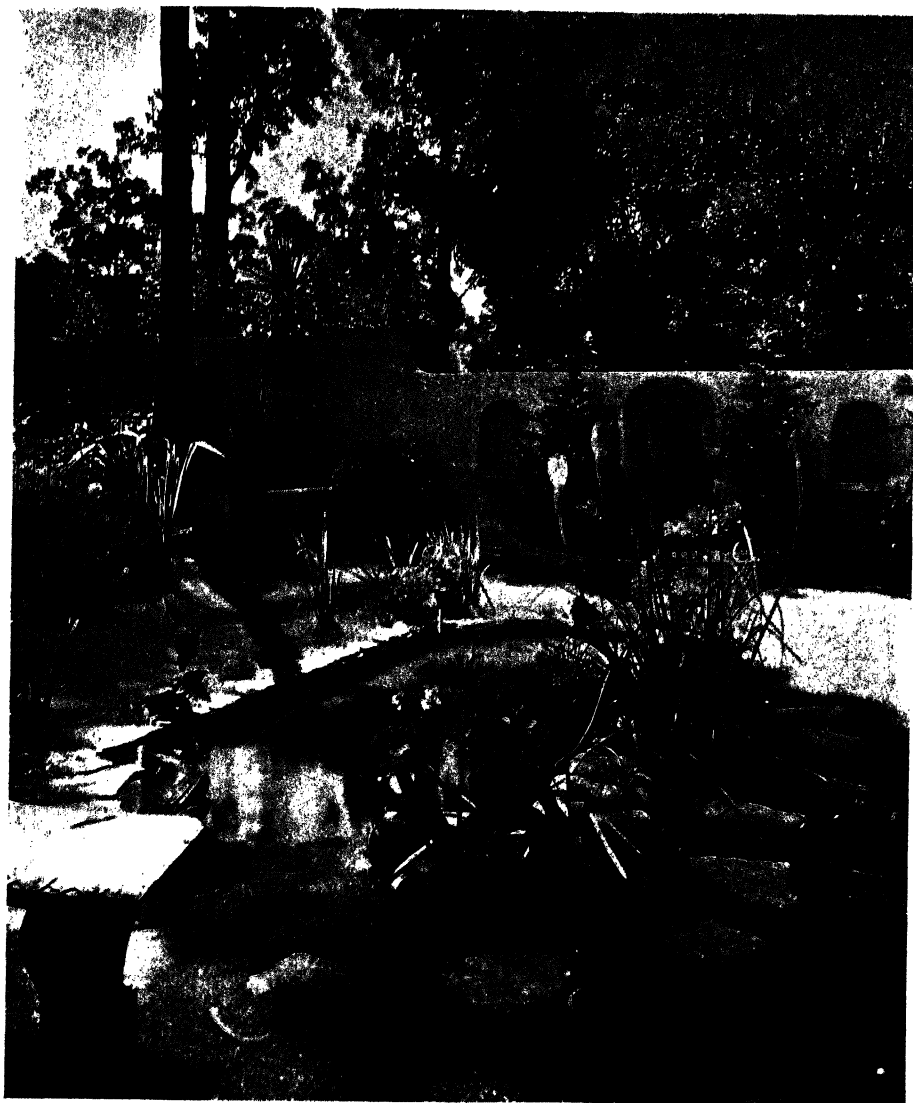
<sup>1</sup> See pp. 110 and 124.

## HOUSING FOR THE MACHINE AGE

locations can be made, it will be necessary to know the ranges of unit sizes and densities which are economically feasible and socially desirable in the section selected. Studies of this kind could well be made by a municipal housing authority. With some definite size standards in hand, a city planning commission can investigate possible locations. In this process, it will have to take into consideration: (a) districts that should be left to develop into service areas; (b) those that cannot be disturbed on account of gas tanks or other intrenched industries; (c) the question whether sub-surface utilities will prevent use of underground vehicular drive-ways or pedestrian arcades in place of existing streets; (d) relative obsolescence of school plants in the area—information which may determine a priority schedule; (e) requirements for general through traffic; and finally, (f) the relation of each location to the whole pattern of possible units.

So far, we have been in the preliminary working-paper stage. Neither studies nor conclusions have been open to the public. If a master plan is to be regarded as a public document, then the addition to it of a mapped neighborhood unit is an official act of considerable practical importance. That step initiates publicly a series of actions which will result in the addition of a whole school district to the official city map, or the replacement of a part of it by a remapped district. Before such step is taken, the implications will be examined by the city planning commission in the light of its own data and those of other authoritative official or private agencies. If more people are not desired in that region; if the latest built-up unit has not been fully occupied; if for any other public reason a particular development should not be begun at this time, the new unit will not be put upon the master plan map.

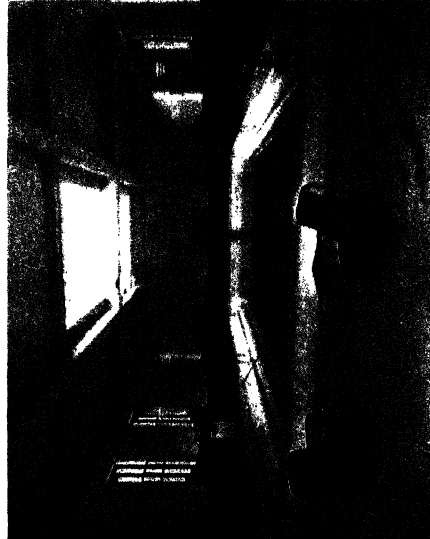
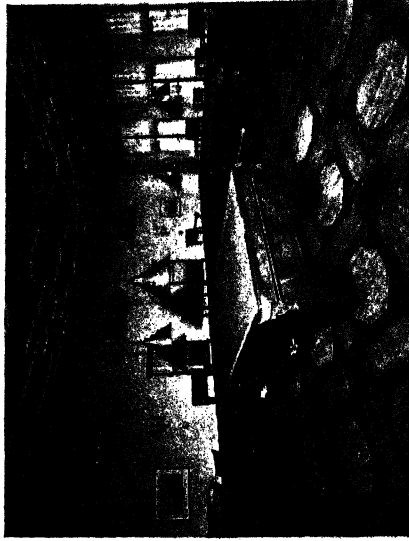
The demarcation of a neighborhood unit upon the master-plan map would be authorized by a majority vote of the city planning commission. Since this move would come immediately to the attention of watchful real estate people, it might stimulate changes in ownership or construction in the district which would unfavorably affect prices and other conditions. Some action would have to be taken, therefore, to hold the district in *statu quo* until the question of its rehabilitation could be decided. That action constitutes the next stage.



*Courtesy of Portland Cement Association*

### AN ATTRACTIVE APARTMENT HOUSE GARDEN

Developments with gardens like this can be constructed in slum districts by private enterprise if government will co-operate



# FACILITIES POSSIBLE IN A MULTI-BLOCK NEIGHBORHOOD UNIT

The bowling alleys have been reproduced through the courtesy of the Celotex Corporation; the other views, through that of the Armstrong Cork Products Company



## ASSEMBLAGE OF THE UNIT PLOT

*Establishment of Neighborhood District.* Upon the advice of the city planning commission the municipal council would publish the boundaries of a "neighborhood unit improvement district" and announce that no permits for new buildings or alterations upon old ones would be issued for a period of ninety or more days. Applications might be filed and action upon them—if or when taken—would observe the priority thus established.

This action would apply only to areas in which an official city map had been established. In raw, unimproved territory, as set forth in Chapter IV, on single-family sections—guiding their development,<sup>1</sup> the neighborhood unit map would be worked out in the process of regulating subdivision, and incorporation in the official map would give effect to the subdivision plan.

Of course, prohibition of building on his own land is a serious invasion of an owner's rights. The fundamental law would not permit such prohibition unless evidence could be shown that public interest required it. This question will be discussed later,<sup>2</sup> in Chapter VII, in connection with the public uses that are urged as justification for the power of eminent domain.

The period of this embargo should be fixed on the basis of time required for (a) making a detailed development plan for this district, and for (b) deciding the auspices under which the development would be carried out, steps which constitute the next stage in this procedure.

*Preparation of the New Neighborhood Map.* "Map" is the term used here since only a map can be inserted in the official map. But the changes to be proposed for that map can be worked out only in connection with preparation of the ground plan of the new project—in fact that plan will contain the new public and private property lines which are the essentials of the official map. But the ground plan can be designed only in the course of planning the entire super- and sub-surface structure. Obviously that is the job of the builder of the development. It brings up the question: Who is going to carry out the project?

It is here that the special construction corporations, already envisaged in this study, enter the picture. To them we have assigned the function of placing production of dwellings on a technological

<sup>1</sup> See p. 93.

<sup>2</sup> See p. 179.

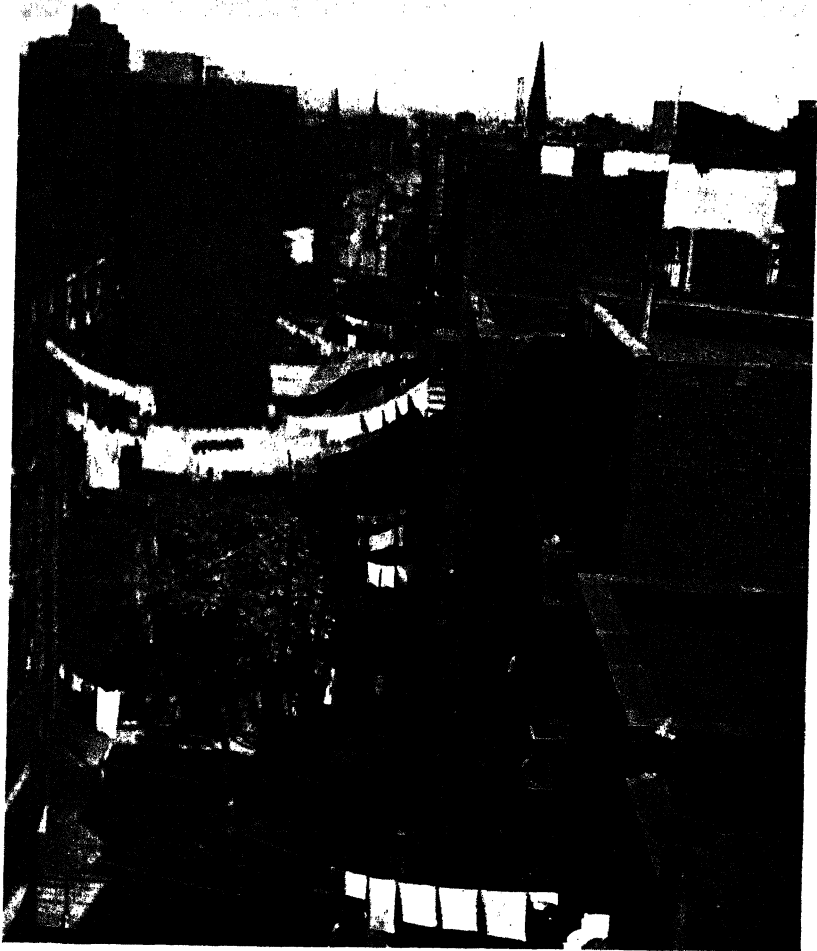
## HOUSING FOR THE MACHINE AGE

par with that of automobiles. They will not be real estate operators but house manufacturers, staffed to carry on every phase of the process from planning to the distribution of their products. On account of the large capital they must command, it is not expected that there will be many of them in the field.

Few if any such organizations now exist. In the course of the publicity and agitation attendant upon bringing about the enactment of laws necessary for the establishment of this procedure, it is to be expected that leaders in the industrial field would make tentative plans for the formation of one or more such organizations. No such concern need be completed until some state legislature had appropriated funds for a staff to be appointed by a municipality for the purpose of carrying this procedure into effect.

What branch of government should undertake the negotiations with construction corporations will not be settled here. For the purposes of this discussion it will be assigned to a municipal housing authority. Whatever agency is selected, it should be capable both of scientific research and the making of business decisions. It should be so completely identified with these functions that it would feel a natural pride in the number and character of the projects it annually put through.

*Selecting the Construction Concern.* As soon as the boundaries of a new neighborhood unit were promulgated, the housing authority would begin the process for securing a suitable corporation to undertake its construction. If only one concern wanted the job, it could have it—according to this scheme—provided it could meet the requirements set up as to the character of the development. In the case of more than one candidate, policy would require that a competition be held. But the contest would take the form of drawings and plans rather than bids of a financial character. Each competitor would submit a *projet* designed to meet the conditions set up for the contest. These conditions would have been worked out by the housing authority in the course of the preliminary planning studies, already mentioned, for determining size of the unit and its location, and they would cover such points as: proportion of plot to be left in open space, standards of light to be observed in disposition of building volume, maximum number of family units to be provided, community facilities to be furnished, character of



VIEW OF ONE OF THE COURTS SHOWN IN THE DIAGRAM OF FOUR  
ACTUAL BLOCKS IN LOWER EAST SIDE, NEW YORK CITY

See page 130

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highways, and all other structural factors of significance to the public welfare.

Each competitor would, in addition to these specifications, be furnished with a map showing dimensions and existing conditions of the demarcated site. Perhaps the most important information supplied by the authority would refer to the probable cost of the land. How could that be known?

In making the preliminary studies by which size and desirable density of the unit plot were fixed, the housing authority would have made precisely the kinds of drawings and calculations which competing corporations would have to make. It would be foolish to ask a corporation to undertake a task in which it would lose money. On the other hand, the authority would need to know—so that it could require—the lowest coverage and the least density that would be consistent with a sufficiently profitable undertaking. To reach conclusions upon these points the authority would have made several tentative ground and architectural plans and calculated their financial aspects. In the course of these studies it would have been obliged to make estimates of cost of the land. Since assessed valuations play an important role in real estate transactions and judicial awards in condemnation proceedings, they would probably be used in this case as a basis for cost estimates. With information in hand as to recent condemnations in that vicinity, or in comparable districts, the authority would estimate the probable cost of “taking” the land in the terms of its present assessed valuation, plus or minus a certain percentage. Cost to the municipality of condemning the land is the price which the corporation constructing the project would have to pay for it. But since the estimated figure could not be guaranteed, a kind of sliding scale would have to be proposed. If, for instance, actual land cost reached X dollars per square foot, then the permitted density might be Y persons per acre. A graded series of such statements could be made that would cover the possible range in land costs.

Each entry in the competition would take the form of a complete plan for the project, elaborated with sufficient detail to indicate how it would meet the requirements that had been set up. Excellence could be shown in two main ways. A competing plan might reveal higher standards—such as more open space—than had been

## HOUSING FOR THE MACHINE AGE

set up. Or meeting the standards it might present a more pleasing design. If the housing authority found it desirable, a jury of architects and city planners could be asked to make the final judgment.

The question might be raised: Since the authority has already worked out a fairly complete plan for this site, why not submit that plan to competing corporations, ask them to bid upon the construction of the project, and adjudge the competitor showing lowest costs of construction the winner? Such a course would overlook the fact that, in the making of a development plan, a corporation has an opportunity to use its own skill and ingenuity. How different two plans for the same site can be is well illustrated by plans D and E of the Winfield series, discussed in the preceding chapter.<sup>1</sup>

The time required by a corporation for the preparation of a plan would naturally be greater in the early days of this procedure. Later on, when requirements are better known, concerns specializing in this field would be ready with plans of various possible developments well in advance of their being needed. It is safe to assume that a period could be fixed which would give ample time to concerns for the preparation of entries and the holding of a competition.

The corporation chosen by a competition—hereafter to be called the "Corporation"—would possess two documents. One would be a map of the district, with the same boundaries as those published, but internally showing new street, property, park, and other lines different from those on the city map. This would be the ground plan of the proposed new development and the basis of a supplementary map showing all the changes which would need to be made in the official map. The second document would include a perspective presentation of the superstructure and a description of the structures which the Corporation desired to erect on the demarcated site.

With these documents in hand the Corporation would approach the municipality and make its proposal.

*Incorporation of the New Neighborhood in the Official City Map.* The Corporation would say, in substance: "Here are the details of a development which we propose to erect in the published dis-

<sup>1</sup> See pp. 126 and 127.

## ASSEMBLAGE OF THE UNIT PLOT

trict. We will pay for the land what it costs the city to acquire it and accept a deed containing the specified restrictions. Here are the bonds evidencing our ability to carry out the project. Insert this map—based on the ground plan—in the official city map and the highways and parks will be ceded to the municipality.”

Changes in an official city map are being made frequently and there is an established procedure by which they are accomplished. Proposals for such changes are generally drawn up and mapped by the city engineer. Hearings are announced and held by the municipal council. The objections of land-owners and other citizens are heard. Costs are computed and assessed. Action is taken.

For a map change of this magnitude a more elaborate procedure is required. The principles upon which it is based will have been formulated in securing the legislation enabling the city to carry out neighborhood unit projects. The existence of a staff for making the planning studies will evidence the fact that it is a definite municipal policy to promote projects of this type. The routine for handling the Corporation's proposal will thus have been set up.

Before we continue with this routine let us have before us all the motivating reasons for the deal. The fact is that the city, in making this change in the official map, finds its justification not only in an increased park and highway area provided by the new map but also in the development that goes with it. Adopting the new district map gives effect to a bargain that is wider than the map change. Let us see precisely what its terms embrace.

The Corporation offers: (a) to rebuild an economically and socially diseased district with a viable development graced with sunlight and green ground, taking traffic off busy streets and adding area to general highways, increasing efficiency of the educational service, and reducing the loads upon the police, correctional, and health services; (b) to accept the land under covenanted restrictions which will tend to prevent its deterioration, a condition that is further assured by a system of integrated public parks that practically compels the keeping of the development under a unitary management; (c) to do its work without public subsidy; (d) to pay regular taxes; (e) to accept limitation of its dividends and to submit its operations and accounts to public surveillance.

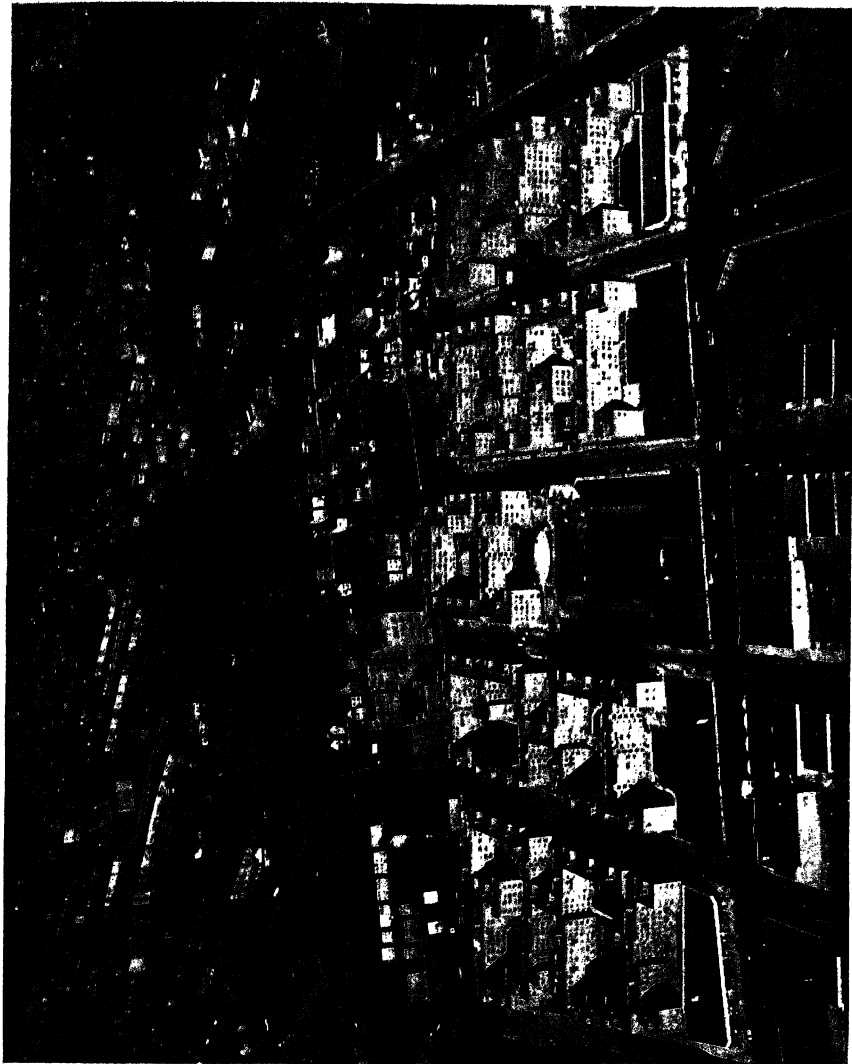
The city, on its part, agrees: (a) to acquire all the land within

the boundaries of the published district, which it does not now own, and to transfer the same, with deed restrictions, to the Corporation, for a price equal to the costs incurred by the city in acquiring it; (b) to insert the new map of the district in the official map; (c) to permit erection of the buildings shown in the development plan; (d) to provide an educational service for residents of the development.

Those being the terms of the bargain, what assurance is there that they will be carried out? In the first place, the benefits upon which the city is depending are contained, in the main, in the new street map and development plan which the Corporation asks it to accept. Construction of the development is practically guaranteed by the bonds and security which are posted with the Corporation's proposal. As to limitation of density and maintenance of the development's character, these are placed under control of the municipality by the deed restrictions laid upon the land and through the municipality's possession of the park spaces which separate the structures.

The Corporation likewise is protected by the fact that the city can secure the benefits noted only through acceptance and authorization of the proposed ground plan and development scheme. The only act set forward into the future is provision of the educational service. That might be an occasion for anxiety were it not for the fact that the desirability of a new school in that district was among the reasons why authorities selected it for rebuilding. The city could demonstrate its intention to provide a school by asking the Corporation to reserve a suitable site in its ground plan, or by furnishing the specifications of built-in accommodations to be provided by the Corporation in its structures and which it would be willing to lease to the city for school purposes.

Having the implications of the Corporation's proposal clearly before us, it is plain what the principal steps will be in the routine of handling it. The first act of city authorities will be that of examining the proposals and seeing whether they comply with the city's requirements as to open space, light and air, density, streets, and other features that had been specified as conditions of the competition. The city engineer will determine whether the plans for the circulation system and the underground utilities would



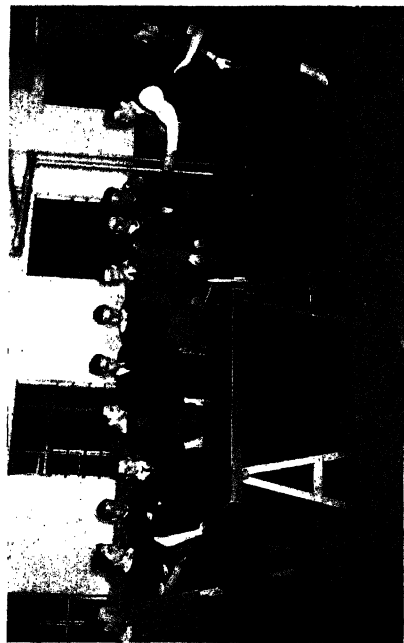
*Clarence S. Stein, Architect*

*Photo by McLaughlin Air Service*

## AIRPLANE VIEW OF HILLSIDE HOMES, THE BRONX, NEW YORK CITY

A limited dividend development covering over 14 acres and housing some 5,300 people





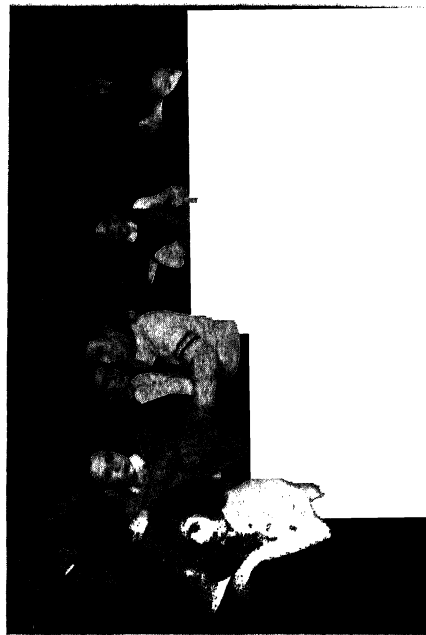
*Photo by John Gass*

Games Room



*Photo by Samuel H. Gotscho*

Kindergarten



## ASSEMBLAGE OF THE UNIT PLOT

meet official standards. If a corporation's plans stand up under these examinations they are passed on to the municipal council, with recommendations for favorable action. The council publishes the proposal and sets a date for a public hearing. If no insuperable objections develop at that hearing, measures to acquire the land and give effect to the proposal are set in motion.

*Acquisition of the Land.* Before taking up the various steps involved in assembling the land, it will be useful to glance at the ground plan for which the land will be required. This plan, or map, will exhibit various bounded areas, each devoted to one of these four kinds of uses:

1. Highways to be closed, opened, or widened
2. Parks (landscaped areas to be devoted permanently to amenity and recreational use)
3. Site of a public building (the school)
4. Sites of private buildings

Let us see what powers are now in possession of the ordinary municipality by means of which these various kinds of land can be acquired.

An existing street cannot be closed without consent of the owners to whose plots the highway gives access. Since that consent is not ordinarily obtainable, a city avoids damage suits by condemning their plots. In order to obtain land for new streets, or for widening old ones, the city is also accustomed to resort to condemnation and to assess the costs upon the abutting land. Thus a city usually has already the power to put a corporation's new street system into effect.

The word "park" as used in this scheme refers to athletic fields and all sorts of playgrounds as well as to the traditional planted spaces to which the name usually applies. In this latter category are also included the landscaped areas lying between and around apartment house structures. Since they offer the same kind of amenity and otherwise serve the same purposes as public parks they are given the same legal status. The questions of public policy and park administration raised by this attitude will be discussed later under the special heading, apartment house parks.<sup>1</sup> To obtain

<sup>1</sup> See p. 151.

## HOUSING FOR THE MACHINE AGE

land for public parks cities are accustomed to use condemnation. The main problem is generally that of determining where to assess the cost. Since in this case it is understood that the cost is to be borne by the development, that matter is settled. If these landscaped courts can be treated as public parks, the city now has the power to "take" them.

The only public building site involved is that of the public school, provided the plans call for the building of a new structure. Acquisition of land for this purpose offers no difficulty, since boards of education generally have the power of condemnation.

The remaining kind of land for which a method of acquisition is still to be provided is that we classified as "private building sites." The legal procedure which seems best adapted for this purpose is that known as "excess condemnation." Such an application of it does, however, involve difficulties, and an alternative method will be discussed in Chapter VII on eminent domain and neighborhood units. Using excess condemnation tentatively on the grounds supplied by the New York statute, the procedure would be as follows:

After the various "takings" for streets, parks, and the public school site had been exercised upon a tract, the private plots still uncondemned would be badly cut up.<sup>1</sup> They would be in the form of remnants and probably unsuitable as building sites. To avoid suits for consequential damages a city would also "take" these parcels under the sanction of excess condemnation. In these ways the whole tract would be acquired.

In adopting the proposed new map after the whole site had been taken by the city government, land for the streets, parks, and school site would be set aside for public use. The remainder, the private building sites, the city would transfer to the Corporation. Its deed would carry the restrictions upon future uses of the development in the interests of the public to which the Corporation had already agreed.

As compensation for building sites the Corporation would reimburse the city in an amount equal to the total awards made by the courts in the condemnation of the whole tract. The Corporation would now be in possession of the building plots and would proceed

<sup>1</sup> See the ground plans on pp. 132 and 134.

## ASSEMBLAGE OF THE UNIT PLOT

with construction of the development, all its operations remaining under the surveillance of the government. After completion the project would doubtless be transferred to another corporation, organized and staffed specially for the function of management. The construction Corporation would proceed to another project.

The various stages in the assemblage procedure having now been completed, we pass to a consideration of several points which have been mentioned but not adequately discussed.

### LIMITATION OF PROFITS

It is plain that the procedure just outlined is going to seem—especially at the outset—like a high-handed transaction. A municipality that takes land away from individual owners, even under due process of law, and turns it over to a corporation for the building of apartment houses, is bound to hear a great deal of adverse criticism. Much of the objection will be met during the course of the educational campaign that will have been waged to secure the necessary legislation. It will then be pointed out that the price for government help in obtaining the land was paid in the restrictions on use of the land to which the Corporation subscribed. The number of apartment suites that could be provided, amount of land to be left as open space, distance between buildings to provide light, and limitations upon future buildings—in all these ways the Corporation had been restricted by the municipality in the public interest.

Nevertheless, some intelligent critics will point out that those very restrictions would help to make the apartments more attractive and increase the profits of the corporation. In reply friends of the corporation could point to the tremendous risks it ran. Thus the debate might go on. At the conclusion it would probably appear that the best answer to all the objections was a limitation of profits. Corporations which believe in a low rate of profit on a large volume of business would not object to a reasonable limitation.

In considering this matter it should be remembered that each project will be handled by two different types of organization. The first one will be staffed for construction and the second will be an organization specializing in management. The first stage will be menaced by labor complications, troubles in the assemblage of

## HOUSING FOR THE MACHINE AGE

building materials, and uncertainty as to how the finished product will be received by the public. Because of these risks the capital required by the construction corporation will be harder to obtain. The limitation placed upon its dividends must not be so low that investments will not be attracted. At the outset sufficient reserves of surplus must be allowed to enable the corporation to build up its staff and stock up with building materials. A corporation must be given an opportunity to live and grow if the benefits of the plan are to be gained. The rate of permitted dividend should be fixed with all these considerations in mind.

Who, in this construction stage, should be the beneficiary of the surplus after the stockholders have received their fixed returns? This is a nice question, and the highest kind of statesmanship should be applied to its solution. It is the suggestion of the writer that this surplus be annually turned over to the workers in the form of bonuses. Such a form of profit-sharing would increase consuming power and in various ways be in conformity with wise public policy.

After the project was completed it would not take long to determine its acceptability and what rentals it would be possible to obtain. Since its income and maintenance costs would be easy to estimate, the financing of a new ownership corporation and its acquisition of the project would seem to follow as a matter of business routine, particularly so as savings banks and insurance companies would gladly invest funds in so safe an undertaking.

The kind of limitation of dividends which seems most practical for the management stage was set up by the Federal Housing Administration<sup>1</sup> in the early regulations governing the projects carried on by private limited dividend corporations. It permits a straight dividend of 6 per cent and, if the surplus is large enough, an increase to 8½ per cent, provided that all excess over 6 is shared equally with the tenants. Whether 6 per cent is high enough to attract capital into this line of business is a detail that should receive special study. It is obvious that a rate which would be attractive could be determined. Without a bait that would win co-operation of ownership corporations in this scheme it would be useless to inaugurate the plan.

<sup>1</sup> Low Cost Housing. Circular no. 3, November 27, 1934, Federal Housing Administration, p. 5.

## ASSEMBLAGE OF THE UNIT PLOT

The sliding scale element in the FHA rate looks like an attractive feature. It would provide a motive for an efficient and economical administration of the property that should win the co-operation of both management and tenants. It would reduce temptation to overload the payroll with too generous salaries and at the same time give tenants a reason for being careful about matters affecting cost of upkeep.

The corporation selected by the city for construction of a neighborhood unit and the management body would both have a status similar to that of a utility company operating under a public franchise. Regulations that have been successful in securing the best results from these utility bodies might well be examined to see what application they might have to this procedure.

It is to be noted that no limitation upon rents or prices of dwellings is proposed in this procedure. Price restrictions would have the effect of limiting the activity of construction corporations to dwellings of a particular class. If we are to make the most of American enterprise and ingenuity we must allow each concern to select its field and permit it to work upon the kind of housing problem its staff seems best fitted to handle. Progress in improvement of housing design will be handicapped if these special construction organizations are limited to a particular price range. Under this procedure we are proposing limitations as to density, coverage, and income. If in addition we take away from corporations the freedom to fix prices and to work in the special field for which they are best fitted, it is a question how many will feel disposed to take advantage of this scheme. They will accept a limitation of income only if it is accompanied by an increase in security; and confidence in the success of a project is lowered when the peculiar genius of an organization is cramped by limiting conditions.

## APARTMENT HOUSE PARKS

One measure for rehabilitating a slum section that has often been recommended, and occasionally carried out, is that of inserting patches of green earth into its drab extent. The shortcoming in the measure is that land in such a section is so extremely costly that it is seldom carried far enough to effect much of an improvement. Seward Park with its playground was inserted into New York's

## HOUSING FOR THE MACHINE AGE

lower East Side at a cost of about one million dollars an acre, but it would be difficult to discover any improvement it has made in the surrounding dwellings.

In every proposal for a new park in an old area, the question is: Upon what district shall the cost be assessed? The district benefited is the logical one, obviously, but laying a new heavy burden upon an area in which tax delinquency is already high does not seem like good public policy. That and the very real administrative problem of how to define accurately the area benefited cause many cities to assess the costs of such parks upon the taxpayers of the whole city. Naturally this step causes criticism from leading citizens and thus the inclination to purchase parks in a slum section is curbed.

In the foregoing pages a method has been described for creating apartment parks in connection with rebuilding projects. The question it must have raised in many minds is this: If the landscaped court of a large apartment building is to have the legal status of a public park, how is the public to be kept out of it? If the public is not somehow restricted in its use of these courts, how can a comfortable and congenial enjoyment of them be assured to the apartment dwellers? For a solution of this problem let us examine some current usages in large public parks.

In many city and county systems there are golf courses that a person may not enter carrying golf clubs without paying a fee. He cannot park his car in many large parks without paying a fee. There are tennis courts upon which he may not play without paying.

Whether such facilities are handled as concessions or administered directly by the park department is a detail of routine that does not concern us. Neither is kind of equipment nor treatment of a park space the essential basis upon which a charge is made. The real reason, apparently, is exclusiveness of use. Golfer and car-owner are given the right to occupy certain spaces for a time to the exclusion of others. If golf courses were absolutely free they would be so crowded that nobody could use them enjoyably. It is the fee in the case of the tennis court, the parking space, and the golf course that makes enjoyment of such facilities comfortable and possible. It helps both to regulate use and to place a part of the maintenance cost directly upon the consumer.

## ASSEMBLAGE OF THE UNIT PLOT

If the apartment parks proposed in this scheme were open to the entire public without any regulation, their peculiar value would be so lessened as to defeat the purpose for which they were created. The way to meet this difficulty seems, therefore, to lie in an application of the fee system.

Let us consider first the difficulties that would arise if the parks, within these rebuilt projects, passed at once as fast as completed into the charge of a park department, by its staff to be equipped and supervised. How could that department, out of its fixed appropriation, meet these new and incalculable demands? If tax money were spent in the equipment and supervision of these large interior parks, so located as to be enjoyed mainly by occupants of the fine new apartments—would the taxpayers at large accept that situation without murmurs?

Suppose, however, that we treat all these apartment parks as concessions, operated by owners of the development upon the following terms: The owners agree to equip and maintain the parks in compliance with such regulations as the park department may set up. They agree to permit enjoyment of the parks by all persons, whether or not residents of the development, who pay the regular fees. These fees are to be based upon the actual costs of administration plus any percentage which the park department may require. Fees of tenants may be included in their rent and they will receive cards certifying their right to use the parks. Families or individuals living outside the development would be able to gain the same right—obtain the same cards—upon paying the same fees.

Without some such policy the procedure we are proposing would be seriously crippled. With such a policy, it becomes possible to visualize the gradual reconstruction of our slum areas, in large patches, each with a core of green earth paid for and supported, without the aid of taxpayers, entirely by those whose lives it brightens. As public parks such patches could never be built upon and would thus serve as barriers to any future increases in the density of their developments. Would an apartment court enjoyed by 5,000 people paying fees have any less public quality than the golf courses and the parking spaces in parks for which patrons now pay?



## HOUSING FOR THE MACHINE AGE

From the standpoint of procedure, the interior recreation spaces of these multi-family projects need have legal status of public parks only if the assemblage is to be accomplished by excess condemnation. If a statute is enacted empowering municipalities to exercise condemnation on the basis that neighborhood unit projects are a public use, then it is possible that these interior open spaces might be denominated "private parks" and there would be no question about reserving the enjoyment of them to residents of the development. Their duration in that status would be fixed by the restrictions under which the land was conveyed to the Corporation. As public parks, on the other hand, their use could not be changed without legislative enactment. Which of these two methods is more desirable the writer will not attempt to decide. The essential objective to be attained is that these open spaces, provided at the expense of the project and to be maintained by it, should be reserved for the benefit of those who share in their maintenance. Without such safeguard they would in many instances be so overrun by persons from outside that their usefulness would be largely destroyed.

The same park policy would apply with equal cogency to the larger, more open type of unit projects that was illustrated in the Winfield and World's Fair district studies.<sup>1</sup>

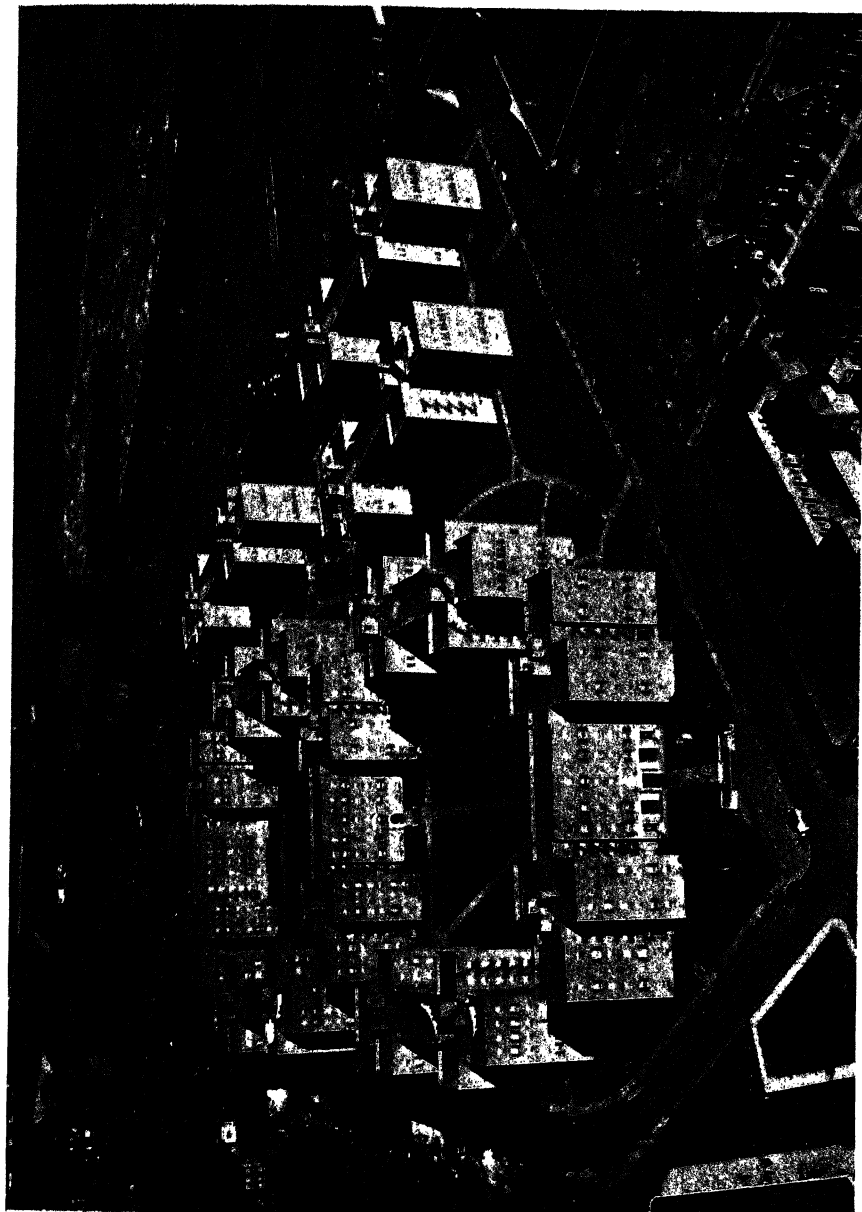
### PARTICIPATION OF LAND-OWNERS

In the monograph, *The Rebuilding of Blighted Areas*, already referred to,<sup>2</sup> the writer attempted to work out an assemblage procedure in which the initiative and promotional energy were to come largely from the owners of the land. Their interest seemed to be the proper force to energize rehabilitation. However, the procedure proposed in that study did not meet with the approval of the lawyers.

The writer still believes that wherever a substantial majority of owners of neighboring properties can agree upon an improvement plan, which meets the requirements of a local city plan and is in the public interest, such owners should be granted government assistance in securing the co-operation of an unwilling minority. If California and other states can compel ranch owners—as is now

<sup>1</sup> See pp. 110 and 124.

<sup>2</sup> See p. 124 note.



*T. H. Engelhardt, Architect*

AIRPLANE VIEW OF BOULEVARD GARDENS, BOROUGH OF QUEENS, NEW YORK CITY

*Photo by McLaughlin Air Service*

Limited-dividend development, 13 acres, population 3,600



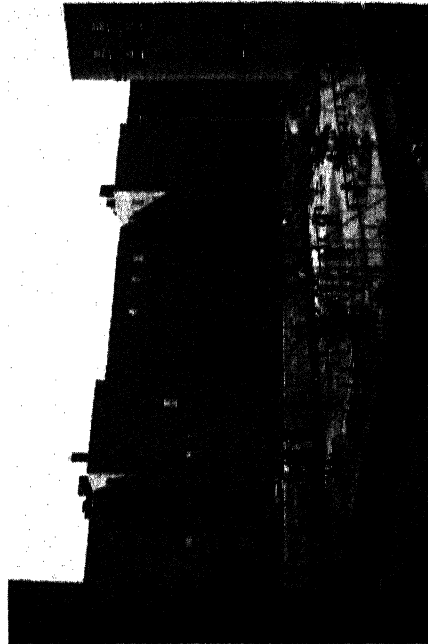
Arts and Crafts Room



Board of Directors in Action



Corner of Metal Crafts Room



The Playground

ANOTHER APARTMENT HOUSE COMMUNITY FROM WHICH LONELINESS HAS BEEN DISPELLED  
All four photographs have been reproduced through the courtesy of Boulevard Gardens Housing Corporation

done<sup>1</sup>—to enter into joint improvement schemes for irrigating arid lands, or draining swamp lands, then a state should be willing to make effective the concerted efforts of land-owners seeking to retard, or eradicate, neighborhood blight.

Architect Arthur C. Holden, the American leader in this field, has made a number of analytical studies and schemes for reorganizing the properties in blighted tenement blocks (and even larger districts)—studies which afford convincing evidence that through such measures owners could often lift themselves out of the slough of deterioration and make a start on the road to economic salvation.<sup>2</sup> The widespread menace of blight in American cities has become a matter of deep concern to the National Association of Real Estate Boards, and it is actively promoting the enactment of a model state statute for “protection and improvement of neighborhoods through action of property owners.”<sup>3</sup> Its plan naturally refers to the larger, separate dwelling type of district and emphasizes dealing with first signs of blight rather than waiting until wholesale rehabilitation has become necessary.

In the reconstruction of a slum section by means of large, comprehensive projects there are several conditions that are hostile to voluntary pooling. The existing structures are a hindrance rather than a source of value. Not modernization but complete rebuilding will be necessary. The only thing many owners can offer is land. Generally in central slum areas owners do not dwell in the district. They are probably not acquainted with one another. The conditions under which a consensus of opinion about land values could arise do not usually exist. This state of affairs, on the other hand, tends to make owners suspicious of one another and more resolved to get the highest price possible for their land. That is not an easy attitude to conciliate in a situation that demands, as nearly as can be attained, an impartial, co-operative meeting of minds as respects property values.

<sup>1</sup> Williams, Frank Backus, *The Law of City Planning and Zoning*. Macmillan Co., New York, 1922, p. 143.

<sup>2</sup> One of Mr. Holden's block reorganization studies is graphically presented in *The Architectural Forum* for January, 1935 (vol. 62, Building Money section, p. 104). The article is by one of the editors and bears the caption, “Gabriel over Block 326-A.” For further reference to Mr. Holden's work, consult Appendix C.

<sup>3</sup> See Appendix D.

## HOUSING FOR THE MACHINE AGE

An even more obstinate difficulty would be found in the legal incapacities of certain classes of owners. Oftentimes they would include trustees of estates or institutional mortgagees who did not possess the right to transfer their interests even if they believed it a wise course of action. Again, the clouded titles possessed by some owners would make difficulties.

In a slum-rebuilding project, with its lofty structures, cost of construction would ordinarily be much greater than land cost. It would be seldom that the value of the pooled land would equal the required equity. The construction corporation would have to bring in so large a part of the equity money that the leadership and, practically, the control of the enterprise would pass into its hands. If the owners participated in the project, their position would generally be that of stockholders. What incentive could be offered that would compensate owners for the "shading" in the prices of their plots that would have to be made—at least in certain cases—in order to effect a pooling of the land?

In view of the difficulties, it seems evident that a pooling of all the properties in one city block would be a miracle—one nevertheless that might happen. But bringing two, three, or four blocks into a voluntary pool is so remote a possibility that it needs no further discussion here. Some day the public advantages of rebuilding single blocks may seem so important as to merit powerful assistance from city governments. The benefit to the public from reconstructing whole school districts seems, however, enough greater to warrant prior consideration.

### PROBLEM OF THE PUBLIC SCHOOL

Building a neighborhood unit presupposes the construction of an elementary school district and involves, therefore, the eventual location of a school edifice on the official map. Establishing a new educational service district raises the question of its relation to existing schools and districts in that section. This is a difficulty, and there is no general rule by which it can be met. Each case will constitute a special problem that will have to be handled by the government agency that first determines the suitability of a district for reconstruction.<sup>1</sup> There are several possible situations:

<sup>1</sup> See p. 140.

## ASSEMBLAGE OF THE UNIT PLOT

1. The present school is in sufficient repair and is so located that it can be left standing and incorporated in the reconstruction project. Or it is so old and dilapidated that a new one is required.

2. The incursions of business or industry may have left a fairly definite section of residential territory so located that it can be treated as a new school district for which a new building will be needed.

3. A certain district, too small to require a regulation public school, might be planned for tenants who are accustomed to use a private school and for whom a private institution meeting special needs could be built into the project plan.

In instances where the school problem could not be suitably handled at the time, that fact might be sufficient reason for deferring the reconstruction of that district to a later date. It would doubtless be good policy to take the easiest cases first. As reconstruction proceeded, confidence in the future of the section would be built up. It would be realized that several generations would use the school facilities which were being constructed, and that therefore they should be adequate for the long and important service they would be called upon to render.

The various steps of the proposed assemblage procedure, and the more important problems it involves, have now been discussed. The keystone of the structure is the acquisition of land by condemnation. Has a basis been established upon which power of eminent domain can be granted to cities desiring to use this procedure? That question will be treated in Chapter VII which follows.

No attempt has been made to phrase a statute that might be enacted for the purpose of establishing this procedure. Such a law would vary in different states. Whether also it is better to seek an extension of excess condemnation to implement the proposed procedure, or try for a straight grant to municipalities of power to exercise condemnation in connection with acquisition of land for approved neighborhood unit plots, is a point that can best be decided on the basis of the local statutory situation.

Another detail not definitely settled is the assignment of the various functions to particular bureaus or agencies. However, a tentative distribution of tasks is made in the following outline.

## HOUSING FOR THE MACHINE AGE

### SUMMARY OF THE LEGAL PROCEDURE PROPOSED FOR THE CREATION OF NEIGHBORHOOD UNITS

1. Single-family, detached house districts. The unit district is demarcated, subdivided, zoned, and placed under restrictions as a part of the procedure set up for the control and regulation of new subdivisions. (Chapter IV.)

2. Multi-family units in unbuilt, near-in sections and blighted areas requiring reconstruction. (Chapter VI.)

(1) The municipal housing authority carries on planning and economic studies to determine the best sizes for possible neighborhood unit projects.

(2) The city planning commission demarcates the boundaries of such unit projects upon its master-plan map.

(3) The municipal council publishes the boundaries of a project as a "neighborhood improvement district" for the purpose of preventing, for a stated period, any building within the demarcated area.

(4) The municipal housing authority selects (perhaps by competition) a construction corporation and acquaints it with the opportunities and the requirements connected with the rebuilding of the published district.

(5) The corporation studies the matter, prepares its plan and proposal, and submits them to the housing authority, asking permission to carry out its plan and the assistance of the city in assembling the site.

(6) The housing authority examines the corporation's proposal and, if found satisfactory, recommends that the change in the map which is sought by the corporation be brought about and that the site be sold, after acquisition, to the corporation.

(7) The municipal council publishes the proposal to change the city map and sets a date for hearings.

(8) If the hearings develop no insuperable obstacle, the condemnation procedures are set in motion.

(9) The corporation reimburses the city for the awards which are made, and the private building land is transferred by the city to the corporation, which then proceeds with construction.

(10) All operations of the corporation during construction and exploitation are carried on under supervision by appropriate governmental agencies.

## VII. EMINENT DOMAIN AND NEIGHBORHOOD UNITS

WE COME now to the pivotal question in this whole scheme. It has been argued that housing in the United States is a scattered rather than a concentrated industry because of inability to secure large sites on reasonable terms by private negotiation. To obtain such sites condemnation is required and government can exercise that power only in the case of a public use. The theory has been advanced that assembling and planning parcels of land in the form of neighborhood units is a public use. This chapter is a brief in favor of that contention.

When land belonging to a citizen is taken by the state, the act is performed under what is called "power of eminent domain."<sup>1</sup> In civilized countries, even the state is restricted in the exercise of this power. According to the Fifth Amendment to the Constitution of the United States, "no person shall . . . be deprived of life, liberty or property without due process of law; nor shall private property be taken for public use without just compensation."

A development of the power of eminent domain that has been used in this country and abroad is called "excess condemnation." In the preceding chapter it was suggested that this procedure might be applied in the assemblage of neighborhood unit sites.

### USE OF EXCESS CONDEMNATION

The writer is aware, however, that there are land assemblage cases in which excess condemnation would not work. It is the weak link in the proposed procedure. It was deliberately left in the scheme for two reasons: (a) When the procedure is broken down into its elements it is easy to see how nearly adequate the existing powers of municipalities are for doing the whole assemblage task.

<sup>1</sup> For a non-technical but authoritative discussion of this subject see *The Law of City Planning and Zoning*, p. 13, by Frank Backus Williams, referred to on p. 94 of present publication.



## HOUSING FOR THE MACHINE AGE

(b) According to the general theory of excess condemnation, the proposed use comes well within its purposes. For some examples of those purposes let us turn to the volume by Frank Backus Williams.<sup>1</sup>

The term "excess condemnation" itself is misleading, Mr. Williams points out,<sup>2</sup> since it applies to the taking of land immediately adjacent to and contiguous with land being taken for a street or park, for a purpose that is *incidental* to the main enterprise. To call it an "excess" taking is to admit its illegality. A more appropriate name would be "incidental condemnation." Mr. Williams illustrates an incidental purpose growing out of the taking of land for a principal street:

A boulevard with cheap houses bordering it is no longer the beautiful boulevard that the city spent its money to create; a view which the boulevard was planned to exhibit to those using it may be spoiled by a solid row of tall buildings or by buildings at wrong points. If the adjacent land is taken wherever necessary and resold with covenants against such uses of it, the boulevard is improved for the purposes for which it was built.

Street construction is not the only connection in which excess condemnation may be employed. On the contrary, it is expedient in carrying out most public improvements. A new municipal building of any pretension raises neighboring land values, and if the city does not appropriate the resulting profit, an asset of value is neglected. An inappropriate use of adjacent land mars the effect of the building on which public money was spent. This is bad business as well as bad taste. For the same reasons condemnation of land adjacent to a new park or similar public undertaking may be in the public interest.<sup>3</sup>

These purposes are, however, much broader than those that have been defined in the various constitutional amendments and statutes relating to excess condemnation, passed by the states. In Ohio the statute of 1904, which was enacted as an amendment to the municipal code, authorizes "Ohio cities to condemn excess land to protect certain classes of improvements and preserve their 'view, appearance, light, air and usefulness.'"<sup>4</sup> In a majority of state enactments, however, the purpose expressed is the elimination of

<sup>1</sup> See footnote on preceding page.

<sup>2</sup> *Ibid.*, pp. 60-61.

<sup>3</sup> *Ibid.*, p. 59.

<sup>4</sup> *Ibid.*, p. 129.

## EMINENT DOMAIN AND NEIGHBORHOOD UNITS

remnants. Thus the amendment to the New York Constitution, adopted in 1913, provides:

Art. I, Sec. 7. The legislature may authorize cities to take more land and property than is needed for actual construction in the laying out, widening, extending or re-locating parks, public places, highways or streets; provided, however, that the additional land and property so authorized to be taken shall be no more than sufficient to form suitable building sites abutting on such park, public place, highway or street. After so much of the land and property has been appropriated for such park, public place, highway or street as is needed therefor, the remainder may be sold or leased.<sup>1</sup>

It is clear that cities, possessed of this limited power, might in certain instances experience difficulty in applying excess condemnation for assemblage of a neighborhood site. It would always depend upon the plan. In any case where one or more private plots were left in salable or usable form after the takings for parks, streets, and school site had been completed, the city could condemn such private land only at the risk of litigation. The owner could allege that the taking was illegal. There might be grounds for an argument over the suitability of his plot as a building site, in view of its changed surroundings, but that fact would not remove the threat of court action which is the main difficulty. Lawsuits are not only expensive but they occasion delays, which are sometimes even more costly than judicial awards. Few corporations would knowingly enter upon a course of action in which there was a fair chance of running into serious litigation.

If this difficulty were of the sort that could be removed, once and for all, by a favorable verdict in a test case, carried to the highest court, it might be justifiable for the city to carry on such litigation at the public expense. The best remedy, however, would seem to be the legislative one. An enactment might be sought to cover unquestionably its use in the assemblage of neighborhood plots, such an extension being clearly within the theoretical scope of this procedure as expounded above by Mr. Williams. Whether or not, in a given state, this step would require both a constitutional amendment and a new statute, local interpreters of the law would have to decide.

<sup>1</sup> *Ibid.*, p. 149.

## HOUSING FOR THE MACHINE AGE

An alternative course is that of seeking a statute which would expressly define the carrying out of an approved neighborhood unit project as a public use, thus bringing it within the purposes for which the sovereign power of eminent domain may be exercised. Let us now take up the grounds upon which such an enactment could be based.

### DO NEIGHBORHOOD UNIT PROJECTS CONSTITUTE A PUBLIC USE?

To the average person the term "public use" refers to a place or structure that may be enjoyed or used in some way by any and everybody. Thus parks and public libraries are for the use of all persons. A post office, a place where government employes perform services for all the people, is obviously a form of public use, and so is a fire-engine house or a police station. When the government, as agent of all the people, condemns and takes land needed for a park or a court house, on the ground that it is for a public use, everybody understands why it is done, and it seems a reasonable and necessary action.

In the unfolding of our commercial and industrial life, the government has been called upon to play an ever enlarging role in everyday affairs. Occasions have arisen in which people would be deprived of some new service that promised to enrich life generally, unless government removed a certain obstacle that stood in the way. The emergence of such occasions, and the response of government to them, have brought about a progressive expansion of the meaning of "public use."

*What Public Use Is Not.* Where, as in this case, an effort is being made to see whether the term can be stretched to fit a new situation, it is necessary to examine any traditional limitations that might prevent the desired expansion. This involves an inspection of accepted usages, judicial dicta, and court decisions bearing upon the point. Fortunately this material has already been brought together in a brief that was filed in a case before the Supreme Court of the United States. The issues raised the question as to the power of the federal government (a) to participate in slum clearance and housing for low-income groups, and (b) to use condemnation in the acquisition of property for such purposes on the ground

## EMINENT DOMAIN AND NEIGHBORHOOD UNITS

that they constituted a "public use" within the Fifth Amendment. While the case<sup>1</sup> was actually withdrawn by the federal government before it was heard, the withdrawal was for reasons which do not impair the validity of the statements regarding public use made in this brief. This was prepared by a group of men eminent as lawyers and thoroughly acquainted with housing matters, acting as attorneys for *Amici Curiae*, consisting of the City of Louisville, Kentucky, and sixteen widely dispersed state and city housing bodies.<sup>2</sup>

(1) *The first point in the Louisville brief that concerns us is that the legal term "public use" is not restricted to instances of occupancy by public officials while performing their official duties, for example, city halls or police stations.*

The use is still "public" when the reference is to private persons using *streets, telephones, or playfields*. Persons enjoying these facilities may be following their own personal whims, nevertheless aid in the promotion of such facilities is an accepted governmental function. "Evidently the private or public nature of the motive or purpose of the ultimate user or consumer is not a test or measure of 'public use.'"

(2) *The number of persons who will physically occupy the proposed work or structure does not determine its public-use status.*

A road to a single farm, that is for the use of a single family, irrigation water for a single farm, a railroad for a single mining company have been declared public uses by the courts. It is not the number of persons who become direct consumers of the improvement, facility or service for which the land is taken which determines whether or not the improvement, facility or service is a public use in the constitutional sense.

The brief cites a number of cases which support various applications of this contention.

(3) *Neither is it necessary that a proposed structure or facility shall be open to anybody and everybody to make it a public use.*

Several court decisions in support of this principle are quoted.

<sup>1</sup> *United States of America v. Certain Lands in the City of Louisville, Jefferson County, Kentucky, et al.* No. 443 in the Supreme Court of the United States, October Term, 1935. Attorneys for *Amici Curiae*: Alfred Bettman, Charles Abrams, Ira S. Robbins, and Ernest J. Bohn.

<sup>2</sup> All matter contained in the six numbered sections that follow has been either condensed or quoted directly from this brief.

## HOUSING FOR THE MACHINE AGE

Of these, we cite two, one an irrigation case, which are often mentioned together in discussions of public use:

The fact that the use of water is limited to the landowner is not therefore a fatal objection to this legislation.<sup>1</sup>

It is not essential that the entire community, nor even any considerable portion, should directly enjoy or participate in an improvement in order to constitute a public use.<sup>2</sup>

(4) *The purposes which may be brought into the public use category are not confined to business purposes, economic purposes, or convenience purposes.*

In buttressing this point, the brief quotes a decision that not only denies the validity of such a limitation, but indicates the directions in which the public use rule may be expanded. In this case,<sup>2</sup> the court was called upon to decide whether or not a purely scenic highway was a public use, and it took the stand that:

Public uses are not limited, in the modern view, to matters of mere business necessity and ordinary convenience, but may extend to matters of public health, recreation, and enjoyment. . . . A road need not be for a purpose of business to create a public exigency; air, exercise, and recreation are important to the general health and welfare; pleasure travel may be accommodated as well as business travel; and highways may be condemned to places of pleasing natural scenery.

(5) *The payment of rent or any other form of compensation does not exclude the public nature of use.*

In support of this contention the brief points out that " . . . those who ride on the railroads pay fares, those who use electric light, power, and other public utilities pay tolls or rates, those who use irrigation facilities pay charges for the water and those whose lands are included in reclamation projects pay assessments for the cost of constructing and operating the reclamation works; and all of these have been consistently held to be public uses."

The brief also cites a case in which eminent domain was upheld for the purpose of filling in swampy lands, even though, when improved, they were to be sold to private parties.

Another case<sup>3</sup> which the brief mentions has a striking similarity

<sup>1</sup> *Fallbrook Irrigation District v. Bradley*, 164 U. S. 112, p. 161.

<sup>2</sup> *Rindge Co. v. County of Los Angeles*, 262 U. S. 700, pp. 707-708.

<sup>3</sup> *In re Mayor etc. of City of New York*, 135 N. Y. 253.

to the purpose for which condemnation is being sought in this study. It was concerned with eminent domain proceedings for piers in New York harbor. "The court held that the fact that a pier might be placed in the exclusive possession of a lessee to be used in connection with steamship transportation did not lessen the 'public use' nature of the city's enterprise."

How much more advantageous to the public are ordinary steamship piers than housing projects which replace unhealthful and wasteful slum districts with taxpaying properties that furnish wholesome shelter and a happy environment for thousands of people? It could truthfully be said that in certain instances it would be impossible for a private corporation to acquire the land needed for a pier without government help. But, considering the size and other qualities required in the site for a slum rehabilitation project, is less need of eminent domain shown?

(6) *The scope of public use is not restricted to past subjects of public action, but expands to meet new needs.*

The brief points out that novelty, in itself, is no bar to the constitutionality of a proposed action. It was relatively only a short time ago when the question of condemning land for a park or a playground was first raised. The first reclamation project must have been a decided novelty. Time and again the courts have stated that it is not possible to interpret rigidly and permanently the constitutional scope of public use. Thus, in a case<sup>1</sup> quoted, the court said:

What constitutes a public use or purpose has, so far as we are able to find, never been defined in the sense of furnishing a rule applicable to all times and cases. It is a subject which does not admit of definition, as the defined limits of today might not answer for the changed conditions of tomorrow. (Pp. 662-663.)

It would seem as if, in the above six contentions, the concept of public use had been pretty well stripped of its non-essential habili-ments. The usages and court expressions presented show us conclusively what public use is not. It is plain that it is not occupancy by government; does not require enjoyment by multitudes; does not have to be open to everybody; is not limited to business or any

<sup>1</sup> *In re Tutbill et al.*, 36 App. Div. 492, 55 N. Y. Supp. 657, affd. 163 N. Y. 133.

## HOUSING FOR THE MACHINE AGE

specific kind of purpose; is not violated when compensation is made; and is not stationary. Naturally the next question to arise asks: What then *is* it? In what does the essence of public use consist?

*Essence of Public Use.* Fortunately, the brief has the answer to this question likewise. The decision that it quotes seems to contain the kernel we are seeking. In this case<sup>1</sup> Judge Cooley said:

If we examine the subject critically, we shall find that the most important consideration in the case of eminent domain is the necessity of accomplishing some public good which is otherwise impracticable, and we shall also find that the law does not so much regard the means as the need. (Pp. 480-481.)

Some advantage placed within the reach of mankind which otherwise would be unattainable—that is the gist of public use, as presented in the Louisville brief. Let us now carry this analysis of public use still farther, looking at it from the standpoint of the ordinary layman. The average person when confronted with a list of the purposes for which the power of eminent domain has been granted in state statutes can hardly fail to be amazed at their number and diversity. Such a list culled from the laws of a single state, follows:

A fairly typical state in this respect is Illinois, which allows condemnation by cities and villages for water works and reservoirs, sewers, streets and alleys, levees and embankments, public coliseums, municipal convention halls, harbor structures and facilities, libraries and water courses. In addition, the more common public utility enterprises (including railroads, electric light and power companies, gas companies, telephone companies), schools, and parks have this power. Other agencies that may exercise eminent domain include counties (for public buildings), canal companies, cemeteries, drainage districts, ferries, mills, mines, mosquito abatement districts, warehouses, roads, public and toll bridges. Although some of the agencies listed rarely use this power and some of them have not tested this right in court, such a list does raise some hope that soon low-cost housing may be recognized to be at least as public in character as, say, cemeteries or mills.<sup>2</sup>

<sup>1</sup> *People v. Salem*, 20 Mich. 452.

<sup>2</sup> Woodbury, Coleman, "Land Assembly for Housing Developments" in *Law and Contemporary Problems* (School of Law, Duke University), vol. 1, March, 1934, p. 219, footnote.

## EMINENT DOMAIN AND NEIGHBORHOOD UNITS

Also, why should not improved housing for *all* classes seem as important to the public as, say, municipal coliseums?

Let us now take one of the commonest services enjoying powers of eminent domain and try to discover in what, precisely, the public good consists. Suppose for example a corporation desires to build a railroad. Is the public benefit the service to members of the corporation in that they are able to acquire land more cheaply? Hardly that. Is it so that Jim Johnson can get from where he is to another place? Not quite that, since he could get there by walking or traveling in a vehicle that does not require a metal track. Is it because by means of a railroad he could go to the other place in less time and with less exposure to the weather? Not quite that either, since if he were the only person going, the power would neither be sought nor granted.

The public good lies in the fact that, if this railroad is built, anyone can travel in greater comfort than without it and at frequent scheduled times. The fact that passengers have to pay fares does not lessen the good. It is the privilege of being able to obtain this service that is the essence of the benefit. Public aspect of the good is also increased by the precedent that is set up by the first grant of this power. If one railroad can be thus aided so can others, in any part of the state where one is practicable. Increasing numbers of citizens are thus enabled to enjoy this new service.

Besides the privilege of more comfortable and more rapid traveling which the railroad brought directly to people, it has also produced certain *indirect* benefits that may be regarded as of still greater importance. These have resulted mainly from the inclusion of cars that carry freight in railway trains. Because of this more efficient method of transporting goods, the collection of raw materials for manufacture and the distribution of fabricated products, as well as farm crops, have been greatly facilitated. As a result new enterprises have been begun and the total national income has been greatly increased. New sections of the country have become available for settlement, and commerce among the various states has grown.

Going back now to the early days, why did the first corporation not go ahead and buy its land without state help, by itself? To answer this we must think about the requirements of a railway



route. It begins, let us say, on a piece of land that the corporation owns. When that body has laid rails to the boundary of its tract, it comes to land belonging, say, to Mr. Brown. If for the right of way over his land he asks a higher price than the railroad people can afford to pay, they can perhaps turn aside and take a route that does not touch Brown's land. Because of that fact Brown may become more reasonable and entertain a deal for the use of his land. It is plain, however, that very early the route will be practically fixed, determined by the contours of the terrain and the location of the towns it is desired to touch. When that fact is known, negotiations of the corporation with land-owners will become increasingly difficult. It may try to meet the prices asked, but every concession thus granted will make the next owner more grasping. Quickly a point is reached where an owner, knowing that the railroad must pass over his land, sets a price which the corporation cannot pay and make a reasonable profit on its venture. Unless this impasse can be overcome the railroad will not be built, and Jim Johnson and all his friends will be unable to enjoy the comforts of railway travel. Because of this fact—not specially to enable a corporation to carry on a profitable business—the government steps in, condemns the land, and transfers it to the corporation. The public benefit is attainable in no other way.

What government overcomes is the strangle hold upon a project that is possessed by an owner who enjoys the monopoly of geographical location. Breaking that hold is the justification for eminent domain powers in the majority of instances where they have been granted. Where the purpose of a project demands a specific location this governmental aid is indispensable. Even a cemetery cannot be placed just anywhere, and the same consideration applies to a public coliseum. This explains why in Illinois these two institutions have been granted the benefit of the power of eminent domain.

*Direct Benefits Afforded by Neighborhood Units.* These have been set forth so fully in preceding pages that little more need be said. Perhaps, however, they can be better realized if put more concretely. We have seen that the governmentally aided railroad made it possible for Jim Johnson to buy rides for himself and his family in a train running on a metal track. Suppose similarly aided cor-

## EMINENT DOMAIN AND NEIGHBORHOOD UNITS

porations began to build neighborhood units—what would they do for Bill Scroggins and his family? The Scrogginses and many other families would then be able to buy, or rent, dwellings situated in neighborhoods provided with a convenient school, parks, playgrounds, or athletic fields, and with accessible shops planned and located in such a way that they would never exert a blighting influence upon the values or enjoyableness of their homes. Their local streets would be such as to lessen traffic dangers, while the community created by the unit plan, with its special name and protective restrictions, would ensure longevity to the original quality of the development.

Other units, built well within city limits, would render it possible for people not desiring a separate house and grounds, but rather nearness to business and other centers, to live comfortably in apartment house neighborhoods not far from the downtown section. They too could enjoy an environment—not generally provided in multi-family districts—which would include parks, landscaped gardens, swimming pools, indoor recreation rooms, school facilities, and all the other requirements of a neighborly community life.

According to the planning and economic studies set forth in preceding pages, these types of living accommodations with their environments would actually cost residents no more than equivalent existing accommodations without these settings. Indeed the prospect is that as large-scale construction got under way the prices for such dwellings would become lower while quality would improve.

The direct advantages to the occupants of neighborhood units are sufficient in themselves, it is believed, to sustain the opinion that such developments may be regarded as a public use. However, an extensive application of the scheme in cities throughout the nation would produce economic effects that would be felt by everybody—taxpayers, property owners, workers, and industrialists, whether residents or non-residents of neighborhood units. These consequences will now be discussed.

### INDIRECT BENEFITS TO TAXPAYERS

Whenever real estate within city limits ceases to yield an income it is ready for inclusion in the class of properties that has stopped paying taxes. Default in any particular locality increases the

burden upon all other taxpayers. Property owners pass the increase along to their tenants. The larger the rents paid by the manufacturer and the storekeeper, the higher the prices they charge for their products or commodities. Thus tax delinquency ultimately touches the pocketbook of the consumer, and then it affects everybody.

*Overcoming Subdivision Blight.* In Chapter IV, on single-family sections and how to guide their development, we saw how the premature subdivision of land had converted areas which as farms had produced an income, into vacant lots which then ceased to be a resource and became a liability. In some instances tax arrears are so high that the owners of record—those who hold the titles—are unable to sell or improve their properties. Any price they could obtain would not meet the tax liens. As the New York State report on premature subdivision quoted on page 85 says, such tracts are in the status of abandoned lands. A title obtained through foreclosure of a tax lien is not considered desirable in most states because of the long period within which an owner has a right to redeem his property; and, furthermore, the municipality that sets out to foreclose tax liens will find some difficult real estate problems on its hands. The situation as it stands today creates a veritable impasse.

In carrying out the neighborhood unit subdivision procedure, the municipality could condemn tracts in this status and transfer them to new owners under clean titles. The funds thus raised would clear off a portion at least of the unpaid taxes and, more important still, land that had been absolutely unproductive would be restored to a state of manageability and usefulness.

Of course, premature subdivision has already occasioned municipalities vast losses that can never be regained. But, if the neighborhood subdivision procedure is set up, many of the withered tracts now piling up tax arrears can be restored to a condition of health and, furthermore, the disastrous effects of future real estate booms can be reduced.

Taxpayers suffer not only when there is a nonpayment of taxes that have been levied, but also when tax funds are inefficiently used in the administration of a public service. Let us take an example.

*Locating Schools Scientifically.* For a number of years one of the

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leading stories in New York newspapers on the September morning following the opening of the public schools was devoted to the number of pupils in certain districts for whom there were no seats, and the rumpus that parents were raising over that fact. An official explanation of this situation was recently made.

We have had in our schools for some years more seats than children but the difficulty is that the children and the seats are not in the same place. Our population shifts from one locality to another in a manner that is little short of amazing to anyone who has not made a study of the figures, and while we have been abandoning schools in one part of the City for lack of pupils, we have had to erect many new schools in other parts of the City to accommodate newcomers to new communities. No matter how carefully we have planned for the future by buying school sites in anticipation of future need and taking other measures in advance to insure properly located school facilities, we have not been able to keep abreast of the population changes.<sup>1</sup>

"Abandoning schools" which are still fit for service and building "new schools"; not being able "to keep abreast," with many pupils on part-time; these are revealing phrases. No person concerned about the futures of these inadequately served children can view this picture with equanimity. But this is not alone a New York condition. Any growing city, without a municipal planning body and a school board working in co-operation, will reveal in more or less degree a like situation.

Another name for a neighborhood unit is "an elementary school district." It is always located by a city planning commission on the basis of educational suitability. It provides dwellings for an adequate school population and sets up restrictions that will tend to make the population permanent in number. The substitution of planning, instead of guessing, tends to reduce waste.

*Savings on Parks.* No city has ever been able to provide its citizens with enough park land. From some quarter or another there is usually a demand for more. Large parks frequently originate as gifts or as farsighted reservations. The public problem they raise is more often that of preservation than of acquisition. But in the case of the smaller local park or playground there is more difficulty. When residential districts are new, they contain

<sup>1</sup> Annual Report of Superintendent of Schools, New York City, 1934-1935, p. 128.

so many vacant lots and fields that people make little demand for recreational space. When a district is fully built up, the demand for play space is more insistent and then supplying the land is more costly. Whether or not the need is supplied, in each instance there is public discomfort.

In the development of the neighborhood unit—as the various planning studies have shown—recreational space is always set aside at the expense of the project. Sometimes the cost is hardly noticeable. It is proposed that the maintenance also of these spaces be laid permanently upon the districts they serve. Thus, in so far as neighborhood units are developed in an urban community, the burden of the public park service is lightened for all the city's taxpayers.

*More Efficient Street Utilities.* It is a common observation that urban populations spread, finger-like, along main highways, leaving sparsely settled areas in between. In large cities apartment houses and real estate colonies follow the lines of transit systems. This sort of development is not only unsightly—it involves wasteful or inadequate installations of public utilities. To realize the lack of economy in laying out miles of sewers, watermains, gas pipes, and electric conduits for scattered dwellings, we have only to visualize the efficiency that can be attained when installations are planned for compact, well-settled districts, with every yard of material serving its optimum number of persons.

The fact that cities grow in this slipshod fashion is due to the circumstance that it is real estate enterprise which locates population and that its guide is accessibility. Highways and transit systems give direction to the developer because his undertakings are not large enough to enable him to do otherwise. But when we can have projects the size of school districts, located in each instance by a city planning commission, then we shall begin to integrate population and highway, transit, and utility systems, thus bringing about more efficient installations of these important public services.

*Preventing Decline in Property Values.* In Chapter I, discussing a more comprehensive housing policy, evidence from authoritative sources in New York City and Saint Louis<sup>1</sup> was offered regarding

<sup>1</sup> See pp. 21 and 22.

the falling off in assessable property values that is going on in urban residential districts. What a serious matter this is for the individual taxpayer is realized by all thoughtful property owners when they reflect that a decline in valuations in one district means that a heavier tax load, in the form of either a higher rate or increased valuations, must be laid on the rest of the city.

There is, of course, a normal depreciation in properties due to the wearing out and obsolescence of buildings. But that cause of decline is not nearly so devastating as deterioration in the environment of a dwelling. On this point, recall the recently expressed opinion of a prominent real estate man—quoted on page 15 herein—that the “normal life expectancy” of a dwelling was two or three times that of the character of its neighborhood. This statement becomes entirely credible when one thinks of the manner in which many new apartment house districts are being developed.

In cases where a considerable tract is being improved, the developer carefully spaces his early structures. The surrounding land is landscaped and sometimes devoted to playgrounds. The tenants for years may enjoy window vistas of distant scenes, while their children romp happily on the nearby grounds. These delightful conditions attract a well-to-do class of tenant. Income from the apartments is highly satisfactory and city assessors put corresponding valuations upon them.

Then the district begins to fill up. One by one the developer builds on his remaining sites. Even these structures are spaced as much as possible. He leaves the playgrounds intact as long as he can. But idle land is expensive to carry. Necessarily he has to build up his other plots. And when they are all covered, the vistas and the playgrounds have disappeared. Then the early tenants move out into more open districts. Rents fall. Presently the owner claims that assessed valuation is too high.

The same depreciation happens even in garden court developments. Recently a friend of the author's, who owns an apartment in one of the earliest projects of this sort in the Borough of Queens, remarked:

“Well, there is a new apartment house going up across the street from us. Soon, I expect, the company will build up the remaining side of our court. Then I shall move out.”

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Turn back to the description of the World's Fair district<sup>1</sup> (Chapter V) and consider the prospects as to the stability of land values in that area. After the district has been entirely built up only a few suites will command vistas of the park, and the most accessible play spaces for many of the small children will be concrete driveways behind blocks of row-houses that are now beginning to appear on the tract. Consider how much the owners of those new row-houses will enjoy the crowds of apartment house children who, with their roller skates, are going to be attracted by the fine wide driveways.

The Flushing Meadow Park will be there, of course. That will be a permanent factor. Whether its value to this district will stand up after the park has become a popular Sunday and holiday resort, and motorists have begun to crowd its ample streets, is a question. The most significant course for us, however, is to compare the prospective quality of this district with the quality it might have had if each of its four school districts could have been planned and developed in the fashion illustrated by Edward J. Mathews' design for district B. Would the years destroy, or increase, the charm of such an environment, especially in view of the fact that the development would have had a competent, comprehensive management remedying each sign of wear and tear, as soon as it appeared?

Many people have looked to zoning as the method for preserving neighborhood character. It has been applied with special care in the World's Fair district and the result is not reassuring. The New York City Planning Commission has recently brought into existence a new area zone, a single-family residential district, but it is highly questionable whether it would have been feasible—on account of the objections of property owners—to apply this new zoning restriction to any part of this area. Zoning as an instrumentality in forming neighborhood character is inadequate for several reasons. The act of merely laying down use, height, and area restrictions does not create public recreation space—no one pretends it has that purpose; and it is not wholly successful in preserving such character as it does stamp upon districts because zoning can be, and is, changed by pressure from property-owners.

Through the neighborhood unit procedure the open spaces upon

<sup>1</sup> See p. 110.

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which desirable character so much depends can be readily achieved, since it is possible to overcome the rigidity of conventional street and block patterns, and to make neighborhood character reasonably permanent, because it is built into the fundamental pattern and maintained by means of restrictions that "run with the land."

*Restoration of Slum Land Values.* One of the most flagrant losses which city taxpayers have suffered, and are continuing to suffer, has resulted from the decline in productivity of property in central slum areas. Not only is the tax yield in these districts abnormally low, but municipal expenditures for correctional and health services, due to evil social conditions, are abnormally high. Slums cost much and pay little.

The irony of the situation lies in the fact that these districts generally have an intrinsically high land value. Since they are usually close to a downtown business and financial center their owners are alive to the possibility that these plots may be wanted for an extension of the main business district. Or because near to offices and other places of occupation, as well as to stores, theaters, and museums, they have a special desirability as places of residence. Mere proximity to a wealthy district increases value. But this intrinsic value is only potential. It can be lost if it is not earned. A plot next door to a splendid bank building would be largely sacrificed if it were devoted to a laundry.

The difficulty of rehabilitating slums through commercial enterprise has already been discussed in Chapter V.<sup>1</sup> During the last few years there has been some rebuilding in central blighted areas, but these projects have all received aid, in one way or another, from government. Indeed there is a strong body of opinion that sees hope of clearing the slums only in public housing. How is this movement planning to treat intrinsic land values?

Without going into details, the chief objective of the current national housing policy<sup>2</sup> is to bring about the construction of low-rent dwellings. To that end it provides loans at an exceptionally low interest rate. Foreseeing, however, that mere financing aid will probably not cause rents to drop far enough to suit the lower-income classes, it provides also for contributions in amounts equal to the difference between a rental income that would liquidate the

<sup>1</sup> See p. 124.

<sup>2</sup> Embodied in the United States Housing Act of 1937.



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undertaking and rents which the people to be benefited could pay. Twenty per cent of the annual rent subsidy is to be borne by the local authorities. Their contributions may be in the form of cash, tax remissions, or tax exemptions.

In so far as the national policy is carried out in central slum districts it will mean the replacing of obsolete and run-down dwellings with new structures, deliberately designed for liquidation by the lowest possible returns, and for occupation by tenants who will have to be given public assistance in order to furnish even that income.

Thus, instead of realizing the rich potential values of this slum land and adding them to the taxable resources of a municipality, the public construction program proposes to invest it with a permanent uneconomic status. The true cost of this program will then be the difference between the productivity that might have been gained and that which will actually be realized in the handling of this land. If that is the necessary cost of providing slum dwellers with decent shelter, let us grant that it is not too high. If, however, there is a less expensive method, then this extravagance ill serves the needy group as a class, since it reduces the number of those who will actually be helped to better dwellings.

Taxable value, wherever it lies in a city, is a resource of all the people, since all benefit by the public service it supports. The intrinsic value of central slum land is an increment created by the community and not a product of individual effort. It is a pity to waste it. What effect the neighborhood unit program promises to have upon its productivity has already been shown in the multi-block studies prepared by Arthur C. Holden.<sup>1</sup> Once begun, this program will clear slums, in a way that will enrich rather than deplete the public treasury.

*Reducing the Burden of Public Housing.* From the standpoint of furnishing decent dwellings to the vast number of people who need but cannot afford them, every saving that can be effected in production is of the greatest moment. The lower their cost, the more dwellings can be provided out of a given governmental appropriation. The nearer the rental rate is brought to the amount these prospective occupants can pay, the smaller the individual rent sub-

<sup>1</sup> See pp. 132-134.

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sidy required and the greater the number of families which a given subsidy will assist to meet that rent. This matter of economy depends largely upon the method of production. Is the direct building of dwellings by the government an economical procedure under American conditions? Let us hear the testimony of authorities close to federal housing experience. The authors of "Facing the Facts on Housing," an article already referred to on page 26, after detailing the complicated conditions in the American construction field say:

Awake at last to the hopelessness of the whole situation, so far as the production of dwellings for the majority of the population is concerned, we call upon the government to do the job. The government goes into building, and the costs amaze us. It quickly becomes evident that the government as such is no more able to challenge effectively the entrenched elements of which the business is composed than is the individual citizen. . . .

Governmental subsidies for housing cannot of themselves solve the problem, and they might actually serve to prolong the existence of most of the underlying causes of it. It is not easy for the government to escape the influence of pressure groups; to get rid of the pyramiding of costs involved in wasteful methods of material distribution; to escape the toll of the subcontracting system; to readjust the basis for workers' wages; to eliminate the risks which necessitate high financing costs; to establish a rational basis for land utilization and valuation; or to resolve the dilemma of our tax-burdened cities. In the event of either subsidies or direct action by the government the tendency to leave the obstacles to lowered housing costs untouched and thus to fortify their position would be well nigh irresistible.

Fundamentally, house-building is still expensive because it has not been brought within the scope of modern industrial technology, an essential feature of which is the large specialized corporation. Such a body is an organization of human beings, but it is like a machine in that it cannot be operated unless great quantities of raw materials are fed into it. When government builds houses it uses the present contract methods<sup>1</sup> and does nothing to create per-

<sup>1</sup> Readers desiring additional details regarding the difficulties encountered by the government in attempting to achieve low-cost housing are referred to the articles by Charles Stevenson, entitled "Housing—A National Disgrace," which appeared in the December, 1938, and January, 1939, numbers of *The Atlantic Monthly*. Also a reply to these articles entitled, "Housing—A National Achievement," by Nathan Straus, Administrator of U. S. Housing Authority in the February, 1939, number of the same magazine.

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manent large-scale construction organizations. Only the certainty of large inputs of material will bring them into existence.

If government will use its power to place building sites within the reach of special organizations—as proposed herein—then it will enable the machine to bring down the costs of dwellings. Such cost reductions will apply to all classes of houses and particularly to those in the lower price levels. With these large-scale organizations functioning, the government will be able to rehouse a given number of families with a smaller appropriation than is now necessary, or to make a given appropriation cover the needs of more families than otherwise would be possible. A benefit will be conferred not only upon taxpayers but upon all classes of people. Further details of the methods by which costs in house-building can be brought about, under the proposed procedure, will be presented in the chapter that follows on cheaper and better dwellings.

Thus we complete the enumeration of public benefits offered by the neighborhood unit procedure.

### NEIGHBORHOOD UNIT BENEFITS UNATTAINABLE WITHOUT CONDEMNATION

Earlier in this chapter it was pointed out that a uniform requirement of the various purposes for which the right of condemnation has been granted was a location having special characteristics. How completely the unit scheme satisfies this requirement is apparent after a moment's reflection. A neighborhood unit, being an elementary school district, its boundaries must not overlap those of other school districts, and these boundaries must fit into the network of existing major highways. By fixing the boundaries the central point of the area will be determined, and this point will be the proper location for the school building.

The large size of the school district area makes it possible to set aside adequate recreation areas with a minimum cost (and one the development can bear), to lay out internal streets with special regard for the safety and convenience of residents, and to zone and plan efficient neighborhood shopping districts.

Cities now establish highways, create parks, and acquire public building sites through the exercise of eminent domain powers. Reduced to its elements, the unit scheme is an instrumentality for

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increasing the efficiency of the municipality in performing those very activities. It is city planning applied to the development of a neighborhood community. Like city planning, it is a locating process. Each location is determined by a purpose that cannot be realized so well on any other site, a fact that gives the owner of the site a geographical monopoly. To loosen his grasp for the public good, the power of eminent domain must be placed in the city's hands. Until it is, the technique of city planning cannot be fully applied in the moulding of residential neighborhoods.

It will be recalled that in Chapter IV, dealing with the development of single-family sections, a situation was considered where it would have been necessary to condemn a property in order to bring it within a neighborhood unit subdivision plan. The justification for that action on the basis of its public-use character was not treated at that time. Since, however, the completion of the unit subdivision was held up by a refusal to pool an important geographical location, and since the plan itself carried all the benefits offered by the neighborhood unit scheme—except those peculiar to a slum rebuilding project—no further discussion of their public-use quality seems necessary. It need only be indicated that the sanction for eminent domain power in that case will have to be embodied in the statute that is devised to carry out the whole subdivision procedure outlined in that chapter.

The establishment of a "neighborhood unit improvement district,"<sup>1</sup> which constitutes one of the stages in an assemblage procedure, does not involve a "taking" of property but rather a restriction upon its enjoyment by the owner. That, according to the writer's understanding, is an expression of police power rather than of eminent domain. The formula citing conditions under which the police power of the state is generally granted confines it to actions or conditions affecting "the health, safety, morals and general welfare of the community." Surely the benefits of the neighborhood unit procedure as just related should satisfy the requirements of this formula. No additional arguments should be needed to support this use of police power for holding up property changes or improvements while a neighborhood project is being shaped.

<sup>1</sup> See p. 141.

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### SUMMARY OF PUBLIC-USE ASPECTS OF NEIGHBORHOOD UNIT PROCEDURE

1. If the proposed procedure were implemented by the requisite legislation, it would enable a municipality to make possible, and to shape, large residential developments, carried out without public subsidy, in which families could purchase or lease new dwellings set in a neighborhood environment that provided a convenient public school, planned recreation space, properly zoned shops, safer internal streets, and a blight-resisting character.

Since developments having these characteristics do not regularly, or with approximate completeness, come into existence under current real estate practices, establishment of the unit procedure would have the effect of promoting the health, morals, safety, and general welfare of the community, which are the constitutional bases for state participation.

2. The same procedure could be used by a municipality in carrying out a deliberate policy to ensure commercial housing construction a large-scale character, thus enabling modern industrial technology to invest the production of dwellings with reductions in costs and improvement of quality similar to those now obtaining in other manufacturing fields.

3. The general practice of creating residential developments having the characteristics mentioned in paragraph 1 and in the large-scale manner mentioned in paragraph 2 would benefit taxpayers by reducing the waste of public funds now incidental to:

- (a) premature subdivisions
- (b) lack of method in locating public schools
- (c) purchasing recreation areas (parks) after the area served has been built up
- (d) inefficient installation of public utilities due to ribbon developments
- (e) rapid decline of assessed values of ill-planned residential districts
- (f) unrealized land values in central slum districts
- (g) unnecessarily high costs of dwellings being provided by government to low-income families

4. The residential developments described in paragraph 1, and the public benefits they carry, are not attainable without the power of eminent domain, since the requirements incident to their location create geographical monopolies.

## VIII. CHEAPER AND BETTER DWELLINGS

IS IT really practicable to obtain satisfactory houses through mass production? Can prefabrication be applied to any considerable degree, and if so will there be a sufficient market for its products? Questions such as these will undoubtedly arise in the minds of many intelligent people. Despite the public-use aspects shown in the preceding chapter, others will see political difficulties in securing passage of the necessary legislation. Will not labor object to another vast extension of mechanical production? These are serious questions deserving of thoughtful attention. The problems they raise, along with allied issues, will now be discussed.

### PRACTICABILITY OF MASS PRODUCTION

One of the reasons why some people are skeptical about the possibility of manufacturing dwellings in factories is that they are so accustomed to the day-by-day sight of their being built out-of-doors. Certain it is that the last stage in the construction of a house—its erection—will always have to take place on the plot where it is to stand. Thus we come to a fundamental fact. Improvements upon traditional construction methods—if they are going to be made—must take place in the stages before materials and equipment are transported to the building site. Are there methods and processes by which such improvements can be brought about?

Man has often had the experience of being unable to attain his objectives in the form in which he first conceived them. If, however, he thought the matter through and determined precisely what things were the most important, he was likely to find that the essentials were within his reach. One of the most useful methods in promoting social progress, for instance, is that of re-defining objectives.

If we apply this method to the housing problem, we find people who think that a dwelling is a building to serve as a kind of fortress and that it therefore should be a stone castle. Others conceive of

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it more or less as an inn, from which to dispense hospitality; a museum in which to house fine possessions; a club; or even an educational institution. But what, reduced to the lowest terms, are the functions of a home? Are they not summed up thus: to furnish a family with shelter from inclement elements and a place in which one may eat, sleep, rear children, and entertain one's family and friends?

For these essential purposes it is evident that only a boxlike structure and certain machines and appliances are required. The box should have five, six, or more compartments, depending upon the number in the family and its requirements. The machines and special appliances needed include one to heat or condition the air and others to cook and to preserve food, to provide light, and the means for clean and healthful existence. Thus simplified we find that house construction divides readily into three main processes: (1) manufacturing of the household machines referred to; (2) manufacturing of the materials and parts which compose the foundations, walls of the rooms, roof, chimney, etc.; and (3) assembling these products on the site.

*Household Machines.* In order to understand the effect of lowering the cost of these machines let us see how large a part of the modern home they form. The most imposing item is, of course, the heating plant. It may be a steam boiler, a hot-water heater, or a warm-air heater. Probably, if modern industry takes hold of house construction, it will begin with an improvement already in sight, namely, air conditioning. In that case an apparatus is needed for heating, cooling, washing, and circulating air. After that will come the following: refrigerator, cooking range, dishwasher, laundry machine, bathtubs, toilets, lavatories, plumbing and electrical appliances, and in addition articles that we can put under the same head—locks, door hinges, window catches, pipes, valves, and other kinds of building hardware.

If it were possible for the owner of a house to figure up what the machines and other equipment mentioned above cost, when installed in his home, he would be surprised at the proportion that amount formed of the total expenditure.

Suppose a special house-building corporation existed that was turning out, say, 10,000 dwellings a year. Its designers would work

out the details of a few model houses, suited for the markets it had decided to cultivate. For each of those models its research department would select, by means of scientific tests, the most efficient type of machine or contrivance in the various classes enumerated.

Having determined the size of its production program, the corporation would then make arrangements to secure the requisite quantities of each approved brand of machine and fixture. In many cases it would be able to contract with a manufacturer to take his total output for the year. This would cut out most of the middlemen and enable the corporation to buy at highly advantageous prices. As time went on and it became confident of a steady volume of business it would begin to buy patent rights and erect factories for the production of many of the machines and other required equipment.

The point to be emphasized is that, so far as these machines, building hardware, and other articles of equipment are concerned, they have no essential characteristics that remove them from the sphere of mass production. They do not need to possess individuality or to display embellishments. Efficiency only is indispensable. There will be models suited to different climates and models that will vary in their mechanical aspects, but within each class machines and equipment will be uniform. Mass production will be precisely as applicable to them as it is to the manufacture of radio sets and automobiles, and it will bring about a commensurate reduction in building costs.

When it is remembered that the household appliances and hardware now used are not standardized (as was pointed out in Chapter II on the construction of automobiles and houses), are produced in comparatively small lots, and pay toll to many middlemen—it is possible to realize the substantial amount saved through placing these elements of a dwelling within the reach of modern industrial technology. If mass production stopped at this point and could be applied to none of the succeeding phases of house building the benefits would still be important.

*House Walls.* We now come to the problem of applying modern production methods to the house envelope, that is, the collection of rooms composed of walls, floors, and roof. Let us assume a hypothetical organization that has secured a single-family neighborhood



unit tract requiring dwellings for 1,000 families. It is in a position to design and prepare specifications and purchase materials and supplies for 1,000 houses. All need not be alike. They can be made of wood, brick, stone, or hollow tile with a veneer—any type the corporation may select—and within that type for the sake of variety there can be several designs.

The first point is that this corporation, having drawn all the specifications, is in a position to place orders for all the lumber, brick, stone, and other materials required for those 1,000 houses. In a word, it can buy in large quantities, can order lumber by the boat-load or take the whole output of a brickyard. It can cut out most of the middlemen. It can reap very substantial savings in the acquisition of these building materials because, through its control of design and specifications, it is able to impose a large-scale character upon their production and distribution. If the application of modern industrial methods to housing could go no farther, this advance alone would permit a considerable reduction in building costs.

The second class of savings, available through mass production, results from the ability to treat materials in the factory in ways that simplify their assembly and erection at the site. The term "pre-fitting" describes this process. In possession of all the details of the houses he is going to build, the manufacturer is able to determine in advance the precise location for each household machine and the measurements of the materials needed for its installation. Thus many pieces of pipe, lumber, tin, copper, and other materials can be cut at the factory to the lengths which will be used, and holes can be bored in them at the points where they will finally be needed. Window and door frames can all be made in the factory. Much of the pre-fitting can be done by machinery upon large quantities. In this way mass treatment at the factory can save a vast amount of costly hand labor at the field site. Naturally, the extent to which pre-fitting can be carried on will be greatest in the simpler models and least practical in the more expensive brick and stone structure.

*Assembly and Erection.* Reductions in costs possible at this stage come both from the easier task of assembling more or less pre-fitted materials and from the greater use of machinery that is permitted by large-scale operations. The small builder may be able to hire a diesel-engined scraper to level off a lot, push the top soil one side

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for later use, and even have it scoop out the cellar, but the price he pays will generally have to cover many days during which that machine lies idle. The corporation erecting 1,000 dwellings at a time can use not only scrapers but tractors, trucks, huge cement-mixers, and other pieces of construction apparatus with economical advantage, because it can spread their costs over more or less continuous operation and many structures.

In the employment of hand labor on a large tract the principle of specialization can also be applied. Crews of mechanics can be assigned to tasks which through practice they learn to do quickly, and they can then move from one building to another. In short, the assembly and erection of 1,000 dwellings upon one tract would, under almost any sort of intelligent management, become a mass specialization process and would achieve the same kind of savings in building costs that modern industry is regularly accomplishing in other fields.

The area within which a construction corporation could profitably own a full set of ground-preparing, excavating, and other machinery useful in house erection is, of course, limited. In each case an extensive plant would be accumulated only after the company had acquired confidence that future business would be of such volume as to warrant the investment. But even if it had to hire equipment it would be able to make much more advantageous terms than would the small builder, because of the longer period for which the machines would be required.

The large organization contemplated in this scheme would have its headquarters and main plant centrally located in that section of the country where it planned to operate, and would have branch offices and staffs in those cities in which it was most active. All designing, research work, and purchasing of materials would take place at the company's headquarters. Such an organization would generally be operating in more than one locality at a time. Instead of ordering fasteners for a single neighborhood unit of 1,000 dwellings, it might be placing orders for a dozen units with orders totaling over 100,000 articles. Under such conditions the building industry would be able to show the efficiency and reduction in costs which have been demonstrated in the motor car world.

For an illustration of the methods and advantages of large-scale

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construction, when applied to simple dwellings, we can turn to the low-cost rural housing program now being carried on by the Farm Security Administration. In connection with its resettlement work, the Administration is now engaged upon a program involving 119 projects, designed to accommodate approximately 10,000 families. That averages about 84 dwellings per project. In some instances it is erecting barns and other farm structures, but we are concerned only with its houses. A statement<sup>1</sup> issued by the Administration relates that these are being built for as little as \$250 a room in dwellings without baths, and approximately for \$400 in those with a bathroom. By way of explaining how these low costs have been achieved, the statement refers to standardization of design, pre-fitting, machine-work at the site of a project, and other methods mentioned in the foregoing pages.

1. *Simplification of Design.* Architects and builders have worked out scientific plans and specifications to give the maximum amount of space and utility for a minimum expenditure. Every unnecessary gable, beam, and rafter has been eliminated, and there are no purely decorative features. Standard materials and sizes are used throughout.

2. *Mass Production Methods.* All buildings were carefully designed to make possible a large degree of pre-cutting and prefabricating. For example, it has been found possible to set up an inexpensive portable saw-mill on a project site and to cut the lumber for a large number of houses to exact specifications. Trucks then deliver these pieces to the building site, where they can be speedily nailed together. Complicated parts of the house, such as window and door frames, are prefabricated at the mill, so that they can be installed with the minimum of labor. A home, for example, can be completed in a week and a poultry house or smoke house can be put up in less than half an hour.

Even forms for pouring concrete foundations are made at the mill. Painted inside with creosote before each pouring, they can be used six or seven times.

Pre-cutting at the sawmill takes only about one-sixth the time which would be required for cutting with handsaws on the building site. It also assures machine precision, and makes possible more uniform supervision. Selection of stock is simplified, permitting the use of odds and ends of lumber which ordinarily would go on the scrap-heap.

<sup>1</sup> An undated mimeographed statement entitled *The Low Cost Rural Housing Program of the Farm Security Administration* was received from its Washington office in October, 1938.

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These methods make it possible to use relatively unskilled rural relief labor, without lowering standards of workmanship. Wherever possible, the homes are being built by the people who later will live in them; they have every reason therefore to keep labor costs low.

All buildings, with the exception of a few adobe houses, are of frame construction, since buildings of this type are best adapted to the pre-cutting technique. The best quality of materials is used throughout.

The simplest type of interior finishing is being utilized. In the South interior walls usually are made of vertical tongue-and-groove sheathing. In the North plastered interior walls and weatherboard exteriors have been found necessary to cope with more severe weather conditions. The ceilings of northern houses are insulated, while the roof peaks of southern houses are vented to permit a maximum circulation of air. . . .

As of January 1, 1938, approximately 3,370 of the 10,000 units had been completed. Experience gained from these beginnings indicates that the low-cost housing program can provide homes and farm buildings at a cost low enough for amortization within a reasonable period by the families which the FSA is rehabilitating.

*Prefabrication.* This is a large, highly technical subject and only its main principles can be treated in this study. In the rural housing plan just presented, it was stated that the window and door frames were "prefabricated" at the mill, while the windows and doors themselves are so generally made in mills that it was not felt necessary to mention this fact. The more significant method was the use of a portable sawmill on the tract by means of which boards were cut to required lengths by a power-driven machine. This device not only reduced the amount of hand-sawing but assured more precise workmanship and permitted the use of local lumber and an economical use of odds and ends.

It is conceivable that all the pieces required in a frame house could be sawed to right lengths in a factory, numbered on a working drawing, and otherwise prepared for use in the construction of a dwelling at a distant site. If we can buy tables, bookshelves, and radio sets in "knock-down" form and assemble them ourselves, why not obtain houses the same way?

But if one thinks of the nature of wood one will quickly understand why houses cannot be built in that fashion. Under the influence of changes in temperature and humidity, wood is likely to warp and change its form. Sawed up in large quantities, months

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before their use, many of the boards would not fit in their assigned places when they arrived at the site of the house. Furthermore, the matter of bundling and shipping such quantities of lumber, even if the large beams were left to be procured locally, would be so expensive as to offset most of the savings expected from the pre-fitting process. There would still need to be considerable sawing and mortising at the site, and if a workman spoilt any of the sawed pieces, extra material and time would be required to replace them. These are a few of the reasons why wooden "knock-down" houses are not yet practicable.

The idea of developing component parts of a dwelling of such a nature that they could be almost wholly fabricated in a factory and then easily assembled on the house site has not, however, been abandoned. Inventive persons and technicians in many fields have been working on the problem for years. They have made progress and their products are now widely known under the term "prefabricated houses."

Leading manufacturers in this field rely upon steel as their main metal material. Steel is impervious to wind and water, has tremendous structural strength, and its rigidity is so great that building units made of this material can be joined tightly together with a minimum number of screws, bolts, or other locking devices. Steel is not porous or absorbent. If it is protected by galvanized coatings and painted with the proper frequency, it will last indefinitely.

In many respects airplanes, automobiles, ocean liners, and railway cars, even though they move through space, are houses. Steel is now their basic material. If it is suitable for them, it would seem equally suitable for stationary houses.

The products of the leading prefabricating firms vary mainly in the shapes and locking devices of the structural units they have developed. While steel is the chief material, some use also plywood, and practically all insert insulating material in their wall units. One firm employs different units for walls, floors, and roofs. Another folds the edges of galvanized sheet steel "into a series of angles and channels which when interlocked create an efficient structural load-bearing wall or roof." A third concern has devised "large, shop-fabricated, semi-finished sections of floors, walls, and roofs, in the form of cellular sheet steel panels. No framework of



*Courtesy of Steel Buildings, Inc.*  
Houses in the Less Than \$3,000 Class



*Courtesy of Steel Buildings, Inc.*  
From \$3,500 to \$4,000  
PREFABRICATED MODELS BEGGING FOR MASS PRODUCTION



*Courtesy of Steel Buildings, Inc.*



*Courtesy of Steel Buildings, Inc.*

A PREFABRICATION STUDY IN INDIVIDUALITY

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any kind is required. The panels themselves are self-supporting and load bearing. When assembled, by means of suitable connection pieces, and self-tapping sheet metal screws, they form a complete enclosure in steel, and provide surfaces as well as framing."

In the present stage of prefabrication what the manufacturer sells is a supply of these structural units which, with their requisite accessories and windows and doors, can be put together to form the chassis, so to speak, of a house. But its assembly and erection have to be performed by the owner (or his contractor), as also the excavation of a cellar, if he prefers that to a utility room on the surface. He has also to erect foundations, build chimney, lay concrete floor, install plumbing, wiring, and heating systems, waterproof the roof, and attend to the outside and inside wall finishes.

Some wall panels can be finished externally with two or three coats of paint, whereas others will also need a kind of veneer. For this purpose brick, porcelain-enameled sheets, stucco, or asbestos shingles may be used. Interior walls and ceilings can be finished by means of various wall paints, canvas-backed wallpaper, plaster, plywood, or some kind of wallboard. Prices upon many of these additional items are quoted by the manufacturer and supplied when desired. But often they can be secured locally at better prices.

Manufacturers of steel houses claim that their products as compared with ordinary houses can be erected in less time; are cooler in summer; can be heated more economically in winter; are safe from lightning; enjoy low fire and tornado insurance rates; are immune from termites and are safer in earthquakes.

The illustrations shown on pages 188 and 189 are evidence that attractive dwellings can be made of steel and that they are not compelled to exhibit a monotonous uniformity. With walls stuffed with insulating material, there is no question about their being economically heated in winter and kept cool in summer. Their engineers have made sure of that. We can take their word also that these dwellings admit less noise from outside, permit radio reception with less static, and can be kept in condition at a lower cost than the ordinary frame house.

Figures as to the price of prefabricated houses are not satisfactory because they depend upon so many factors that have not become standardized. Naturally, price varies with the number and



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size of rooms, types of heating plant, refrigerator, lighting fixtures, and other domestic apparatus, kinds of outside and inside finish, size of basement, and the labor wage scale at the point of erection. Samples do, however, give a notion. The houses shown in the upper illustration on page 188 are in the less than \$3,000 class; those in the lower picture in \$3,500 to \$4,000 class. Actual orders have ranged from \$600 to \$1,250 per room.

Even these prices compare favorably with those of houses of equivalent durability and living qualities now being built in the conventional way. The truth is, however, that prefabrication under prevailing construction methods does not have an opportunity to exploit its particular virtue. The manufacturer of steel houses is in no better position than the ordinary operative builder to obtain large construction orders. And so he, like our speculative builder, tries to pick up jobs wherever he can. Besides soliciting orders from industrial organizations which contemplate providing shelter for their workmen—a rather barren field—the prefabricator tries to sell his product by the catalogue method. To meet widely varying tastes, his circulars show numerous models. (One concern has worked out 80 different plans.) He stocks up with a supply of his most likely models; but these cannot be numerous. However, the range of choice which he offers has the inevitable effect of spreading the orders he receives over many types of houses, which for the most part he manufactures in small lots only as they are purchased.

Despite the attractive pictures and the convincing arguments which the manufacturer can offer, he works at a great disadvantage in selling his product. Even though the customer is provided with a catalogue and price list of equipment and accessories, he is obliged to consult local tradesmen and contractors, who may present arguments against prefabricated houses, and if he finally does buy the materials for a steel house, he has to arrange for its erection, the installation of household equipment, and the completion of the exterior and interior finishes. Is it any wonder that sales have not been satisfactory?

To the ordinary person, what the term prefabricated seems to promise and what its product should give us is *low cost*, and that can be obtained only through mass production. But that is wanting. In prefabrication, as now carried on, we find that standard-

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ization is almost as restricted, contracting just about as prevalent, and small-quantity buying and producing just as dominant as they are in the world of traditional construction. The rigidity of steel which makes possible factory-made units that can be screwed, bolted, or locked together on the house site with a minimum of labor and expense is a great virtue. But steel is expensive. Its value as a structural material can be fully realized only when a specific house model, together with all its equipment, has the benefit of machine production in quantities of 1,000 or more, unit costs decreasing as output increases.

It is one of the special merits of the neighborhood unit procedure that it seems likely to provide prefabrication with the opportunity it requires. In Chapter IV it was explained how single-family subdivisions of the neighborhood unit character would come on the market in a way that favored their acquisition by strong housing corporations. Each tract, of school district size, would be already planned and endowed with recreation spaces, a well-placed school site, and scientifically laid-out shopping districts.

A prefabrication concern faced with the opportunity of erecting 1,000 or more dwellings upon such a tract would seem to enjoy special advantages. With its research staff it could select six or seven of its most efficient models and distribute them upon the tract in attractive layouts, surrounded with the fundamentals of an effective planting scheme. Its engineers would determine what brands of equipment to use and the best method for installing them. Domestic science experts would plan efficient kitchens and determine their appliances and set-up. The other rooms also could be so laid out as to please most customers fully as well as rooms they themselves might have planned. Houses for various-sized families would be included among the six or seven models employed.

At the outset, at any rate, it would seem advisable for the company itself to perform the assemblage and erection of the dwellings. On a tract of that size scraping machines could be used for leveling the ground and scooping out the cellars, if they were to be provided. Trained crews could put up the houses and finish them in the most expeditious manner. In this way it would be possible to offer customers a completed job, with one financial plan, with nothing to do but to select the house, make the down payment, and move in.

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They would know just how everything would look before they made any engagement.

The heating or air-conditioning plant, the bathroom, the cooking range, refrigerator, and other household appliances would be the same in every house, but they would be of efficient and superior types. Exterior and interior house finishes could be varied so as to reduce monotony and provide pleasant contrasts. Variety could be achieved also in the placing of houses upon their lots.

Production of such houses in a lot of 1,000 would make available considerable reductions in costs. If the unit scheme is valid for one city it is for another, and under an effective educational program legislation establishing the unit procedure in a number of states should be a probable result. With wide publicity and the support of the Federal Housing Administration, neighborhood unit subdivisions should in a short time be arising in a dozen or more cities at the same time. Not only one prefabrication concern but several rival organizations would then find room for operations in this field. If a company were developing unit tracts in 10 or 15 cities simultaneously, it would be able to buy or produce its household equipment and structural units in still larger quantities, with corresponding reductions in cost prices.

Would companies be able to sell their product quickly? That would depend in the first place, of course, upon the price. When one considers all the various ways in which costs can be cut by this method, is there any doubt of the ample room for price reductions together with satisfactory profits? Even on the present basis of small-quantity production, steel houses have achieved favorable prices. With large-scale operations there can be no doubt of very substantial cuts in prices. The competition of other companies and the desire for a quick turnover are bound to force prices down to the lowest practical limits.

In addition to low price, each buyer under this scheme would be obtaining a dwelling with exceptional environment. Where else would families be able to find city homes in which their children would be sure of having nearby playgrounds, where their youths could enjoy baseball and football on local playfields, and the entire family have the enjoyments of a neighborly community life? The benefits of the unit development have already been sufficiently de-

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scribed, but it is here that they should be particularly brought to mind, because it is the purchaser for whom they will naturally have the greatest appeal.

But these houses will be highly standardized; many will be much alike. In view of the demand for individuality, which has found such full expression in traditional home building, how will the American public like the more uniform product of a modernized construction industry? In considering this point it is well to remember that we are in a realm of style, taste, and public opinion in which change is constantly taking place. We do not require our motor car to be highly individualized. The rich, poor, fastidious, and "low-brow" all roll along over concrete highways in vehicles of striking similarity. It is never safe to gauge a man's wealth or his culture by the make of his car. Indeed, the astonishing thing is the extent to which the benefits of engineering research have been spread over the whole automobile output. Consider the many different models of the same year, in all of which the salesman will tell you that engine, chassis, brakes, and transmission system are alike. Once the details of an improved model have been worked out, its manufacture in quantities sufficient for the whole production program is less expensive than is the turning out of a like total number when made up in several different styles. Individuality and elegance in cars are shown not so much in the working parts as they are in car bodies and their appointments.

Similarly, the factory-produced house would possess high-grade domestic machines that had been developed by expert engineers. It is true that these *working parts* would be alike in practically all the dwellings constructed by the same concern in a given year. But how many families of even most fastidious taste would feel hurt by the fact that their air-conditioning plant was precisely like that possessed by the family "across the tracks," and that of tens of thousands of other families throughout the country? That considerable individuality in the outside appearance of steel houses can be achieved is evidenced by the photographs inserted in preceding pages.

In judging the salability of prefabricated houses under this scheme, we must consider not only the exceptional comfort of their living accommodations and the congeniality of their environment,

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but also the fact that their low prices will place them within reach of large numbers of families who are unable to afford the new houses offered in the current market. One thousand homes, with values never before offered at those prices—would not the size alone of such a population movement sweep away locally any lingering doubts about the acceptability of prefabricated houses?

In considering the financial aspects of this scheme from the standpoint of a corporation owner, we must remember that besides its profit-yielding dwellings it has also for sale or to rent some 50 stores, all well located for reaping the business values created by a new community of 1,000 families.

*Apartment Houses.* In the multi-family housing field it might be thought that there was little opportunity for mass production methods. A moment's reflection would show, however, that a corporation specializing in this line would be able to see the matter in a different light. There is no mechanical reason that requires a six-story elevator apartment structure in a city on the Atlantic coast to be different from one in the Middle West. If a corporation were planning and constructing from six to a dozen such buildings in each of twenty cities, it could specify and supply precisely the same building materials and equipment for a large number of these projects. Indeed, much of the hardware and some of the domestic machines would be of the same type as those used in single-family dwellings. The concern's chief difficulty would arise from the local building codes. Even this trouble, however, could be minimized by expert planning. With the various codes in hand its architects would generally be able to write specifications that would come within the minimum requirements of most of the cities where the concern was operating and to plan specially for the others. Palpably ridiculous requirements would be brought to public attention and thus efforts would be initiated toward their reform. A New York newspaper recently mentioned a six-story apartment house nearing completion in which, for the first time, light steel floor beams of the bar joist type were utilized. Who knows what further improvements in construction methods and equipment installations will be employed when these structures are being both planned and built by special organizations operating upon a large scale?

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We have now examined from a construction standpoint three classes of houses: (1) ordinary dwellings of wood, brick, stucco, and other familiar materials; (2) prefabricated houses; and (3) apartment houses. It appears that mass production is feasible as respects household machines and appliances in all three classes. Quantity buying of building materials is feasible in all three classes. Pre-fitting of materials by machinery in the factory, with consequent facilitation of assemblage and erection in the field, is feasible in high degree in the case of prefabricated houses.

In all these three types of housing modern industrial technology could be applied by the introduction of strong special manufacturing organizations, and in the case of prefabricated houses the machine could also be brought in as an aid. Large-scale construction would greatly reduce costs—and therefore prices—for all classes, and for factory-made dwellings in the highest degree. These special organizations would be brought into existence by the certainty of their being able to secure the requisite sites at reasonable prices.

### HOUSING THE LOWER INCOME GROUP

We come now to the bearing of this study on public housing. In the preceding chapter authoritative writers were quoted who pointed out the fundamental difficulties which confront any government attempting by itself to build dwellings. The gist of the problem is that the present unsatisfactory costs cannot be improved by using the very same methods which are now responsible for them. When government utilizes contractors, and the other practices which make building a chaotic and disorganized industry, it is entrenching and not overcoming high costs.

When we look into the manufacture of automobiles, radio sets, or any other product regarded as an achievement of modern industry, we find that there are strong special organizations operating in each of those fields. England, as was related in Chapter II, has managed its housing in such a way that large building organizations have been developed, and they have accomplished remarkable reductions in building costs. If the reasoning in foregoing pages of this chapter has any validity, considerable reductions in the costs of all forms of dwellings can be made in the United States by a similar course of action. Why should not we likewise use the gov-

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ernmental aid we give to housing in such a way that it will permit and encourage the introduction of modern industrial technology into our own construction industry?

If large-scale private enterprise is given a chance to attack our housing problem, it is bound to make its strongest efforts in a new market, one that is now closed to builders because incomes, in this stratum, are not high enough to afford new houses. But this income zone is graduated. Some families have almost enough to buy a home; others not quite so much; and others are still farther below the home-buying level. A manufacturer who could offer dwellings at a price lower than the current product would readily find customers among those who "had almost enough," and the lower he was able to bring his prices in succeeding projects the larger the number of prospective buyers he would have. We can still remember how the automobile manufacturers struggled to win the low-price market. The same sort of competition will happen in the housing field if government will provide the necessary conditions.

An important part of the machinery required for developing strong construction organizations in this country is already in existence. It will be recalled that the assemblage procedure described in Chapter VI assigned an important role to a municipal housing authority. Such authorities have now been set up in most of the states of the Union. But their present assigned function is that of carrying out housing projects themselves, according to traditional methods. If now the laws required to establish neighborhood unit procedure are enacted, these authorities will be invested with new powers and additional staff with which to exercise them. Whether there will be harmony between the two divisions of an authority in carrying out their respective functions will depend upon the wisdom and skill displayed in administration of the authority.

If the purpose behind the new function of the authority is wholeheartedly furthered by its activity, large projects will steadily be set up which will supply work for these special construction organizations, and if our reasoning is sound, they will be able to bring about a gradual lowering of costs and prices. Soon they will be producing houses more cheaply than the government building staff. At that time the public interest will require that new projects for the lowest income groups be fed into the "big hopper." The con-

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struction division of the authority will then taper off and the staff handling shaping and supervision of unit projects will be increased. If older staff members can be gradually transferred to the new and expanding division, harmony can be preserved.

The private construction organizations will be able to reduce costs in the highest degree only when they have constructed, or taken over, large permanent plants. But they will not expand in this way until they are confident that city governments will continue to condemn and turn over to them, as provided in Chapter VI, a succession of large plots. The call upon them by the government to build cheap houses by contract will make work for their machines, but it alone will not create confidence in the future. That will be accomplished through recognition by public and government that organizations like theirs are necessary, and by the continuance of regulations which protect as well as supervise them.

If we enable modern industry, in this way, to lower the cost of housing, such funds as the government may set aside for rent subsidies will help more people to enjoy decent shelter. We shall be able to empty the slums more rapidly and we shall also be benefiting all other people who purchase houses.

In Chapter V, on apartment house neighborhood units, it was argued that the most efficient way of rehabilitating "downtown" slum districts was to rebuild them with dwellings suitable for families whose heads were employed in nearby financial and business sections. Such a method would utilize the potentially high land values of central slums and enable a large number of workers to live near their offices.

This plan raises the question as to where the dispossessed slum families would be rehoused. It would be less expensive to provide homes for them in the outskirts, where land was less costly and where generous spaces could be set aside for the recreations of their young people, but such a measure would remove them far from their accustomed places of work. It is true that many other heads of families employed in "downtown" districts habitually travel long distances twice a day to and from homes in outlying less built-up sections. Despite this fact, leaders in the public housing movement, out of their strong regard for the comfort of slum families, are making strenuous efforts to enable them to live as



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closely as possible to the locality in which they originally settled. There is also in the public mind a deep impression that low-cost housing is the appropriate instrumentality for accomplishing slum clearance, which means, of course, that they must both take place on the same site.

It is plain that if suitable places of occupation could be provided near the homes of slum families in the outskirts, there would be no substantial objection to rehousing them in such localities. That thought brings up a fundamental reflection. In these large-scale housing operations we are gradually changing the character of our cities. We are shaping the conditions under which future generations are to live. In those cities of tomorrow is it still going to be necessary for multitudes to travel each day long distances to their places of work? Are streets and transit systems to be continually choked? In a word, are we going to do anything to enable city people to live near their occupations? This is a subject that no serious student of city planning can overlook.

### RELATING RESIDENCE TO OCCUPATIONS

When we examine man's deliberate attempt to reshape the city we are bound to say that, broadly speaking, the channels of circulation—such as parkways, express highways, and bridges—are practically the only parts which show the imprints of his effort. Add to them certain parks he has created and public buildings he has more suitably grouped, and his achievements to date in city planning are pretty well summarized. The record to which he will point, aside from a civic center, perhaps, and some planted areas in the outskirts, will generally consist of maps and air views of tunnels, bridges, subways, underpasses, overpasses, drives, parkways, express highways, super-highways, riverside drives, and boulevards. Even the imaginary pictures of the future city generally show schemes dominated by traffic ways.

The zoner has modified somewhat the area of the ground that buildings may cover. He has whittled their tops into spires so as to lessen the obstruction which they set up to sunlight. But he has not succeeded very well in controlling their bulk, particularly in the large cities. As to use of land, he has stabilized the functions of

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older areas, but in the location of business and industry in new territory his efforts so far have been rather bungling.

The main weakness in man's city planning effort has appeared in his lack of control over the location of new structures. That is still governed mainly by unco-ordinated private enterprise, and the same force has also exercised a large influence upon the shaping of main circulation systems. We have made it possible for people to get to places, but that very facility has lessened our grasp upon the situation. Apartment houses grow up alongside new subways and compel us to put on more trains. We provide express highways to financial districts and we choke the streets of these districts with motor cars. There is little space in which to park, and to get out again is a nuisance. Worst of all, vast multitudes have to ride daily long distances between homes and working places, packed like sardines in stuffy trains. The time, expense, and discomfort thus involved make this condition a flagrant defect of urban life. City planning cannot be regarded as successful until it has found a way of mitigating this condition.

The basic trouble is that we have not known how to get away from the pattern of one all-sufficing center for a city. In a metropolitan district we find a large urban planet surrounded by a number of satellite towns. Residents of those towns who also work in them enjoy pleasant occupational conditions. The form of city structure which that aggregation suggests to us is one that provides smaller satellite communities within the still plastic area of the growing city. Such an intra-urban community would not need a town hall, a grand opera house, or an art gallery. Its essential components would be areas devoted to industry, residence, recreation, and shopping. The prescription would be well filled by a factory district with one or more adjacent neighborhood units. The industrial area might be a corridor or a core, but any attempt to fix the size or the arrangement of this aggregate further than that would tend to limit its applicability. A community on the village pattern would be too unwieldy.

Provided a factory does not emit huge volumes of smoke, unhealthy vapors, or deafening noises, there is no physical reason why it need be isolated from dwellings. The grounds of a large industrial plant can be bordered with high, vine-covered walls and strips

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of planting. A planned neighborhood community, with its own parks and playgrounds, its special streets, its school and other institutions, would have so attractive an internal life that proximity to a well-ordered industrial district would not destroy its residential character.

It happens sometimes that the filling in of a low-lying, swampy area creates a large tract that is suitable for factories. If it lies near a railroad or waterway and could be provided with sidings or wharves, it would be specially valuable as an industrial district. According to past practices such a section would generally be devoted entirely to factories and dreary yards. With skilful planning, however, it could be partly devoted to dwellings suitable for the classes of workmen who will seek employment in those shops, and the remainder of it be zoned for industry. In that district most of the people would be near their work.

In many cities, sections near railway yards and factories are already suffering from blight. They are frequently built up with single-family houses and have small yards but no public playgrounds. Such districts could well be rebuilt more densely with apartment house neighborhood units similar to Plan D of the Winfield studies.<sup>1</sup> Such a course would reclaim the residential character, and enable a larger number of people to live near shops and places of business.

As has been pointed out, the central business and financial sections of many large cities are surrounded by belts of slums. To reach the offices and counters in this downtown area, thousands of persons are daily traveling from homes in a city's outskirts and more distant suburbs. Municipalities have built transit systems and widened streets to serve them. If, however, these central slums were rebuilt in a way to house these office workers satisfactorily, as recommended in foregoing pages, a large proportion of these people could live within walking distance of their places of occupation and the load upon transit facilities would be lessened.

Members of the Amalgamated Clothing Workers of America in New York City have co-operated to help their members finance down payments and thus be able to secure improved dwellings in

<sup>1</sup> See p. 127.

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two large developments.<sup>1</sup> The example suggests that similar developments could be brought about by craft unions in which dwellings would be in the locality where their members worked. Oftentimes these factories are now situated in areas where ground rents are high. It would be advantageous to their owners to be located on cheaper land, farther out, and near the dwellings of their employees. Use of the neighborhood unit scheme would enable the planning commission to place a development for such workers near any site the manufacturers might select, provided there was room for it. A co-operative effort of this sort would, it is true, require the attendance of much good luck if it were to succeed. There are, however, enough gains to be made by all parties to furnish the necessary motivation. If one attempt of this sort succeeded, it would be an inspiration for many other similar ventures.

For the displaced slum dwellers, the best possible provision would be a series of low-rent neighborhood communities on cheaper land farther out, and near if possible to industrial districts where residents could find suitable work. Such developments would give their children the much needed play space and all members of the family the benefits of neighborly life.

Inauguration of the neighborhood unit scheme will not solve all the problems involved in placing city dwellers nearer their work, but it will constitute an important step in that direction.

## INCREASE OF EMPLOYMENT

All through the depression economists connected with the Administration have fervently hoped—even taken promotional measures—for expansion in the construction industry. It was desired because it would stimulate the investment of stagnant money in capital goods and, more especially, would put idle men to work. That a rise in large-scale building, such as they had envisaged, would be accompanied and to a certain extent preceded by greatly augmented activity in steel mills, machine shops, and the manufacture of plant equipment goes without saying. These are natural aspects of industrial growth. That factory production of homes would im-

<sup>1</sup> Located at 504 Grand Street, Manhattan, New York City, and at 80 Van Cortlandt Park, The Bronx, New York City.

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prove the lot of the building worker, however, is a view that is not so readily accepted.

It is commonly believed in the world of labor that the introduction of modern technology into a new field of industry is generally accompanied by a decrease in opportunities for employment. Machines take the place of workers, it is said. If there were no increase in the amount of product, that statement might be true. In the present instance, however, the huge volume of new house fabrication will be, in the main, in excess of current construction. Machine-made housing will be almost completely absorbed by the lower income groups, a market not now being served by handmade dwellings. Present staffs and crews of building workers will continue to be occupied with orders for individualized homes and any defections caused by prefabricated houses will be more than offset, it is believed, by new recruits for the custom-made product brought into the market by the prosperity which the special housing corporations will create. So far as this writer can see, elevation of house construction to the level of modern technology will be accompanied by a large net increase of jobs.

Another objection often urged against modern industry is that it decreases the opportunities for skilled workmen and puts in their places automatic robots. This objection might also hold if there were no changes in the amount and character of the industrial output. On this point we can fortunately turn to some evidence. In our own lifetime we have seen the private vehicle transformed from a handmade product to a highly mechanized one. Let us examine some of the changes in occupations which have occurred during that process. They are well summarized by Professor Ogburn in *You and Machines*.<sup>1</sup>

The automobile took away the jobs of stablemen, hack drivers, grain farmers, wagon and buggy manufacturers; but it created many more jobs than it took away. Just think of chauffeurs, mechanics, workers in automobile factories, gasoline station attendants, steel manufacturers, miners, roadmakers, cotton-growers, rubber-workers, oilmen, painters and salesmen to whom automobiles give work. It is a mistake to think of machines and inventions just as stealing somebody's work. Inventions also make new jobs.

<sup>1</sup> See p. 22.

## CHEAPER AND BETTER DWELLINGS

Further significant details regarding this development are now available as the result of a year's investigation of the General Motors Corporation, carried on by Hartley W. Barclay, editor of *Mill and Factory*. Its purpose was to discover and reveal the effects of an outstanding industry upon the national life. Aided by a large staff, Mr. Barclay collected and compared data from more than a hundred thousand sources. He has made a partial report<sup>1</sup> upon this study in an article entitled "The Production of Value," in the June, 1938, number of *The Atlantic Monthly*. The following facts are abstracted and condensed from that article. They all refer to activities of General Motors.

This corporation has carried on 3,000 motor research projects.

Special trades developed or improved by it: electric welding, electric etching, clay sculpture, gear shaving, X-ray operating, interfactory teleautographing, and many other techniques requiring special skill. (There are 400 types of repair welding, and men skilled in this trade can find opportunities in some 3,000 well-equipped motor repair shops.)

Its silversmithing and fine body hardware division (now employing 60 per cent more workers than in 1929) provides work upon 787 different items involving hand craftsmanship.

It uses more than 3,000 varieties of machines nonexistent in 1908.

It supports more than 150,000 cotton-producing families, due to the nearly 100 pounds of cotton which are used in connection with the manufacture of each car.

It maintains indirectly through purchases 4,300 workers in coal and electricity.

Its disbursements for purchases and payrolls benefit more than 6,000,000 persons.

These statements do not begin to summarize all the various ways, as revealed by this article, in which the activities of the General Motors Corporation touch American life. Getting behind these figures, however, we see a vast range of vocations, including those of physicists, chemists, metallurgists, designers, electricians, machinists, and metal and woodworkers of all kinds. Through the mere bigness of its operations it furnishes sustenance for many other concerns in the industrial and commercial world.

From this example of General Motors we cannot, of course, deduce the conclusion that a large housing corporation would produce

<sup>1</sup> The complete report is contained in the volume entitled *The American Economy*, by Hartley W. Barclay, published by the Atlantic Monthly Co., Boston, 1938.

precisely the same results. Nevertheless, it helps us to feel more certain that the researches of a special construction organization would likewise result in new inventions and new machines. Its shop activities would develop and nurse new special trades and skills. If it developed a large volume of business, its purchases and dealings would nourish many suppliers of raw materials and special parts.

When one speculates closely upon the probable effects of mass production of houses on the present building crafts it is difficult to see how any of their members would lose their jobs. We are not confronted by a revolution such as occurred when the horse-drawn buggy was superseded by a gasoline locomotive. A house is still to remain a house. In the custom-made class will still be just as many—probably more—which will give work to architects, bricklayers, stone masons, painters, and plumbers as in the past. There may not be as many carpenters working on the outside walls of houses, but there will be more of them engaged in fine woodwork, inside the factories, and within the buildings being finished on lots. Not least among the benefits that will come to the worker from mechanization of this industry will be much more house value for himself and his family in exchange for his dollar.

Our proposal has now been presented. To summarize it briefly: In the building and rebuilding of our cities, divide the work into neighborhood units, each of which contains the environment and the facilities for a well-rounded family life. Government locates these projects and prescribes their essential features. Their size makes their construction suitable for large-scale industry. Through teamwork on the part of the government and private enterprise, the people receive the benefits of both mass production and modern planning.

Will the procedure be initiated? A resourceful group in any state can set the legislative campaign going. The federal government could promote it by giving publicity and promising insurance of mortgage loans on approved neighborhood projects.

If initiated, will the authorities make unit plots available fast enough to keep the machinery of big housing in operation? Do they want cheaper houses and more employment? The answers to both questions lie with public sentiment and resulting governmental action.

## IX. HISTORY AND SOCIAL SIGNIFICANCE OF THE UNIT IDEA

IN MAY, 1909, when the writer joined the staff of the Russell Sage Foundation, his first assignment was an investigation of the meetings, public lectures, entertainments, sports, and other activities then being carried on in public school buildings after class hours. The community center movement was then just taking shape. In New York City Hiram Leipziger had already begun public lectures in schools, and Evangeline Whitney had inaugurated her system of evening recreation centers. Edward J. Ward had studied the New York centers, conferred with Jane Addams at Hull House, and thus inspired had organized his famous but short-lived "social centers" in Rochester, New York. In Cleveland Mrs. Sarah E. Hyre was conducting her popular system of free lectures and discussions in public schools; while in Philadelphia, through the parent-teacher association, Mrs. Mary Van Meter Grice was making adults feel at home in the institution they supported. In most cities throughout the country some sort of neighborhood activity, cultural, recreational, or social, was making an evening use of public schools.

### SCHOOL AND SOCIAL CENTERS

The movement began to attract the attention of leaders in public affairs. In social settlement circles it was, of course, well esteemed, because the public school as a neighborhood center was but an extension of their own idea. Among those interested in recreation also the plan was applauded, because it meant increased facilities for basketball, folk dancing, and indoor games. And now publicists began to hail the school center. The free and frequent discussions of civic and political questions which were being emphasized—especially by Mr. Ward—seemed a possible cure for the evils of the political machine. After Charles E. Hughes, then governor of New York State, had inspected the Rochester centers, he said:



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I am more interested in what you are doing and what it stands for, than in anything else in the world. You are buttressing the foundations of democracy; you are making it more sure that our children will enjoy, even more richly, that which we have cherished in our lives.

Woodrow Wilson, in an address at Madison, Wisconsin, in October, 1911, characterized this "social center" movement as follows:

The interesting thing about this movement is that a great many things have occurred to people to do in the schoolhouse, things social, things educational, things political—for one of the reasons why politics took on a new complexion in the city in which this movement originated was that the people who could go into the schoolhouses at night knew what was going on in that city, and insisted upon talking about it, and the minute they began talking about it many things became impossible, for there are scores of things that must be put a stop to in our politics that will stop the moment they are talked of where men will listen. The treatment of bad politics is exactly the modern treatment of tuberculosis—it is exposure to the open air.<sup>1</sup>

With such influential backing, the community center movement made real progress. Mr. Ward went from Rochester to the Extension Department of the University of Wisconsin, and while there was able to promote a state law which made it possible for citizens to hold a referendum and vote appropriations for the operation of community centers. Milwaukee, notably, took advantage of this statute, and developed a successful school center system under the direction of Harold O. Berg.

Mr. Ward's next move took him to Washington, and there he secured a congressional enactment for the District of Columbia, under which community occasions and activities were begun, and have ever since been carried on, in the Washington school buildings.

In New York City, the People's Institute, with John Collier as moving spirit, organized a voluntary committee which conducted a significant community experiment in Public School 63, on the lower East Side of the city. It seemed at first to justify the hope that school centers could be run upon a self-supporting basis. Subsequent events did not sustain that hope, but they did help to bring

<sup>1</sup> Ward, Edward J., *The Social Center*. D. Appleton and Co., New York, 1913, p. 174.

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about a change in the administration of school extension activities in New York City that made it much easier for voluntary associations to work in the schools and to organize occasions for neighborly meetings.

In Chicago Edward L. Burchard, another disciple of Jane Addams, organized a community council and an evening center of instruction and entertainment in the Harrison Technical High School. Results were so impressive that Mr. Burchard joined the National Community Center Association and became one of its leading spirits. As secretary-treasurer of that body and editor of its bulletin, he did effective work in the advancement of the movement. He it was who formulated the Community Council plan for the organization of national resources which the Council of National Defense put into operation in February, 1918. From the standpoint of official recognition and its place in public consciousness the World War period saw the zenith of the community center movement.

Throughout those years it was the writer's business, in part, to give publicity to the progress and more significant developments of this movement. These chronicles comprised in bulk three books<sup>1</sup> and some twenty pamphlets. After the war and the deflation of neighborhood activity which ensued, it seemed worthwhile to attempt an appraisal of the existing status of the movement.

A quick survey revealed the more salient aspects of the school center situation. School boards were showing greater hospitality to local associations, clubs, and neighborhood affairs than ever before. Indeed it could be said that the right of the community to an after-class use of the school plant was widely established. Most of the larger cities were opening schoolrooms—that is, providing extra janitorial service and supervision for indoor games and club activities for the young people, especially in the more congested districts, while adult groups were generally able to use school facilities by paying fees. But the comprehensive, neighborhood-wide organization of the people's civic, cultural, and recreational activities, in their own tax-supported clubhouse—the public school

<sup>1</sup> *Wider Use of the School Plant*, Russell Sage Foundation, 1910; *Community Center Activities*, Russell Sage Foundation, 1916; *Educational Extension—one of the 25 Cleveland Education Survey Report monographs*, Survey Committee of the Cleveland (Ohio) Foundation, 1916.

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—had nowhere been fully established. Why was the ideal praised by Woodrow Wilson and Charles E. Hughes, and preached by the leaders in social progress, not being realized?

### THE REGIONAL PLAN OF NEW YORK AND ITS ENVIRONS

While this question was being turned over in the writer's mind an event occurred which was to make it necessary for him to reach some definite conclusions regarding not only school centers, but the whole subject of neighborhood life in cities. On May 10, 1922, it was formally announced that the Russell Sage Foundation would promote a "Regional Plan of New York and Its Environs" and that definite studies in that field had been in progress for more than a year. In the final setup of this project the writer, by virtue of his connection with the Recreation Department of the Foundation, became a member of the Social Division of the Regional Plan.

The main goal of the Plan, from a recreational standpoint, was to make it possible for "people to live near their daily occupations, and find play opportunities in the neighborhood."<sup>1</sup> Authors of the plan realized that not much could be done to achieve this objective in the older and built-up districts. However, new residential districts were constantly being developed and added to the city's area. If these could be properly equipped with recreational opportunities much would be gained. There was therefore a practical usefulness for ideal standards.

This field divided naturally into two parts—(1) the recreational facilities of a citywide or regional range, and (2) the recreational facilities of a neighborhood service radius. Because of the writer's extended studies of neighborhood life, this section of the field fell to him.

When the problem of recreational equipment of the neighborhood was examined more closely it was discovered that it resolved into three main questions: (1) Neighborhood parks and playgrounds—upon what kind of basis should they be distributed? (2) Granting that apartments and tenements will be used to a certain extent by families with children under sixteen, how can sites be divided and

<sup>1</sup> Plan of New York and Its Environs—Report of Progress, May, 1922–February, 1923. Plan of New York and Its Environs, New York, 1923, p. 53.

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buildings constructed to afford maximum play-space?<sup>1</sup> (3) Since observation shows that a large amount of recreational activity takes place, indoors and outdoors, under the auspices of voluntary associations, in how large an area, given certain population, racial, and social conditions, does a local voluntary association concerned with matters of common interest most naturally arise and flourish? In general terms, the inquiry might be put simply as: just what are the conditions under which local community life in cities most healthfully develops?

In thinking about a method for distributing neighborhood playgrounds, two points were plain at the outset. One might know how many square feet of space were required for 100 children, but if that space were located alongside an arterial highway, which happened to be in the center of the area it was to serve, then one-half of its young patrons would risk their lives going to and from it. Again, if it were so placed that a factory district bordered it on one side and an area of dwellings on the other, then the play service district would be lopsided. Thus it was evident that a neighborhood playground could not be treated by itself. Consideration had to be given to the other elements of a neighborhood. But what were these and how should they be arranged? In a word, if one had the wealth of a Midas and the power of a Fascist dictator, how would one build an urban neighborhood?

### FOREST HILLS GARDENS

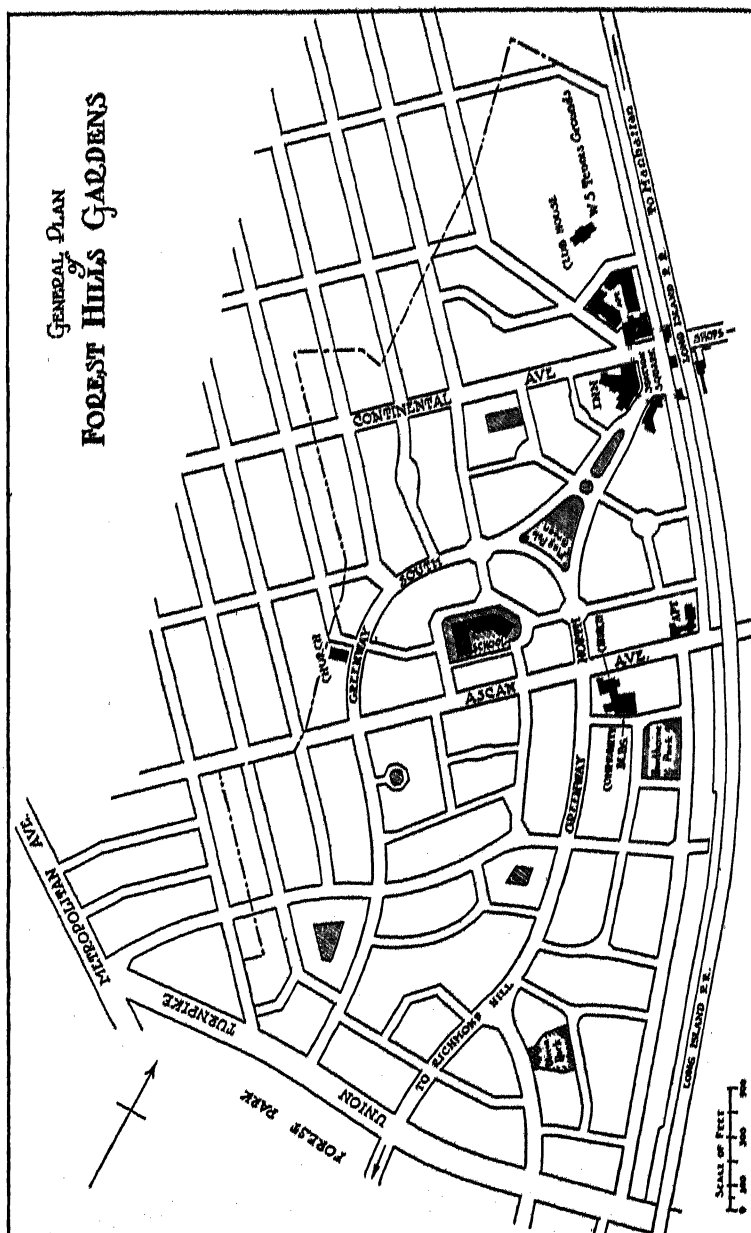
The answer to this broad question came to the writer in a simple but unexpected way. When he had first reflected upon the problems put to him by the Regional Plan it had looked as if answers could be found only by wide surveys and much investigation. The solution of the problem, however, was near at hand. He himself already lived in a highly satisfactory neighborhood and had watched it grow ever since 1912, when with his family he had moved into it. He had only to analyze the factors responsible for its success and reduce them to general principles.

The development referred to is Forest Hills Gardens,<sup>2</sup> located in

<sup>1</sup> *Ibid.*, p. 55.

<sup>2</sup> For a detailed description of its plan and community life, see New York Regional Plan, vol. 7, p. 90.

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Reproduced from New York Regional Plan, volume 7

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the Borough of Queens, New York City, which had been promoted and financed by the Russell Sage Foundation as a residential development modeled after developments that had been impressive in England. Frederick Law Olmsted had laid out the streets and done the landscaping, while Grosvenor Atterbury was the architect in charge of design and building construction. The Foundation believed that the development would provide healthful and attractive homes to many people and demonstrate that tasteful surroundings and open spaces would pay in suburban housing. It hoped to encourage imitation. The project was organized therefore as a commercial rather than philanthropic enterprise.

When the writer analyzed the Gardens development into its essential elements, he found that they constituted the main principles of an ideal neighborhood. Even its unsatisfactory features were helpful. These were due, it was found, to conditions that were either irremovable or unforeseeable. When the tract was planned (1910), no one realized how much the automobile would change modern life, nor was there a general consciousness of the need for public playgrounds. The plan of the Gardens, however, in principle recognized both these aspects; the actual provisions were simply not carried far enough. When the analysis of its elementary features had been revised in accordance with modern needs and expressed in general terms it presented a concept of a model urban community to which was given the name "neighborhood unit."

The details of the ways in which the virtues and defects of Forest Hills Gardens contributed to the neighborhood unit formula<sup>1</sup> can be briefly enumerated:

*Size.* The tract contains 164 acres and a population of about 5,000 persons. When the few vacant lots and apartment house sites that remain in it have been improved, the population will still not be too large for the single elementary school with which it is provided.

*Boundaries.* The development, roughly triangular, has a railway on one side and an arterial highway on another. Its third boundary follows the zigzag lines of an old farm and naturally is not visible. The incursions of foreign traffic and other troubles suffered by the

<sup>1</sup> Published in its final form in 1929 in vol. 7 of the New York Regional Plan.

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Gardens because of not having wide, by-passing highways on all sides emphasized the need of such highways.

*Open Spaces.* The Gardens has a total of about five acres in small parks, beautifully landscaped, and for the most part nicely inserted in the street system. In 1910 that was a generous allowance of recreation space, but we know now it was insufficient.

*Institutional Sites.* A central site for the school was reserved and finally occupied; and, following tradition, the square, called Station Square, which contained shops and was adjacent to the railway, was architecturally embellished and treated as the civic as well as the business center; but because it was a traffic center and located in the periphery of the community the arrangement did not work well. The square is still used as a place for the formation of processions and some other minor occasions; but patriotic exercises are held on Flagpole Green, children's games in one of the parks, outdoor theatricals in a sylvan theater, political rallies and voting in the schoolhouse, and other meetings, dances, and club affairs in the community house. The experience of the Gardens indicates that a neighborhood community requires for its civic activities special structures, in an appropriate central location, and that a business district does not properly serve this purpose.

*Local Shops.* The square, as mentioned, is located at the railroad station, where commuters take trains for business in Manhattan. By an underpass it is closely connected with another business district, on the opposite side of the railway tracks serving both the Gardens and adjacent neighborhoods.

*Internal Street System.* In laying out interior highways, planners of the Gardens abandoned the gridiron system and substituted for it one that was more highly specialized as to function. Four main highways completely traverse the tract and unfortunately allow much foreign traffic to pass through it—a result hardly predictable in 1910. Today they speak loudly as to what we should no longer countenance in planning neighborhood street systems.

The experience of living in the Gardens was informative also in regard to conditions that favor local associations, as well as to the questions raised by the halting school center movement. As in the case of other large suburban real estate developments, early settlers found certain desirable services lacking, and they began at once to

## HISTORY AND SOCIAL SIGNIFICANCE

agitate for them, through the formation of committees upon playgrounds, a school, a post office, and several other matters of local concern.

### COMMUNITY LIFE IN THE GARDENS

After local public services were cared for, the next concern was maintenance of the residential quality. Fortunately, covenant restrictions under which the properties had been conveyed provided for the payment by property owners of annual maintenance fees. When the promoting organization had ceased to function, collection of these fees and enforcement of restrictions fell upon a non-profit corporation of property owners.

During the course of the community meetings and committee contacts residents became acquainted with one another. Those with special interests found others who shared these interests and who were willing to enter into associations formed to serve and promote them. Thus arose the women's club, the men's club, the choral society, the Gardens Players, boy and girl scouts, and various other voluntary bodies. The most characteristic of these, the Celebrations Association, grew out of the custom of observing Independence Day and Christmas Eve as community festivals.

When reduced to general terms the basis of the Gardens' community life was simple. It grew directly out of the physical plan of the development. Originally intended to satisfy the environmental needs of a fairly definite social class, it attracted a more or less homogeneous group of residents. To fill out its complement of public services they had to organize. To protect its character they had to organize. To enjoy the various common facilities they had to organize. The plan, in most of its aspects, either compelled association or made it easy and enjoyable.

That the Gardens' community life did not result from any economic or social characteristics peculiar to its residents was evidenced by the fact that other large, comprehensively planned developments, appealing to various social classes, have also produced similar manifestations of the community spirit.

In the light of the Gardens' experience, the fundamental difficulties in average residential districts that stand in the way of



neighborhood organization centering in the public schoolhouse become clear. Briefly, they fall under four heads:

1. There are few physical features—such as a special street plan—to give people a sense of their locality or to occasion local pride.
2. There are few neighborhood service needs which residents can supply through organized effort, even if they could overcome the difficulties of getting organized.
3. Voluntary association upon a geographical basis is generally difficult because of uncongenialities due to differences in race, religion, and customs.
4. In general, there is nothing in the physical situation of a district that demands association and there are many conditions in the social situation that make it difficult.

Aggressive promotion of community life, where it does not spontaneously arise, is a task requiring great skill. Voluntary organizations cannot be compelled or manufactured. They must grow. The cultivator must know how to plant the seed; must know the right soil and the habits of each species. It is an educational process, the only method whereby local community life can be introduced into the older and denser sections of large cities. New sections, and those so decayed that they require extirpation, can be built, or rebuilt, in residential units so fashioned that in each a rich community life will spring up from deep roots in the physical development plan.

This, then, is the long and devious route taken by the chain of events that ended in the formulation of the neighborhood unit concept, which is the theme of this study. The fact that it has been presented with the help of city planning and real estate developers' language and illustrations is incidental. The formula itself is simply a set of principles, "a scheme of arrangement," the essential features of which were first publicly outlined by the writer on December 26, 1923, in Washington, D. C., at a joint meeting of the American Sociological Society and the National Community Center Association. Publication in final form—in volume 7 of the New York Regional Plan—occurred in 1929.

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### FUNCTION OF THE FACE-TO-FACE COMMUNITY

In the opening chapter attention was called to the difficulty with which the neighborly atmosphere, common to the long-settled village, is reproduced in cities, particularly in multi-family districts. Vast numbers of urban dwellers are not acquainted with the people living next door. When, however, residents are brought together through the use of common recreational facilities, they come to know one another and friendly relations ensue. Existing developments with neighborhood unit features have consistently produced the face-to-face social condition, and that is the reason for introducing the subject in this discussion.

Certain individuals with adequate mental and social resources and craving for independence object to living in a state in which their daily comings and goings are carried on under the scrutiny of neighbors. No doubt many rural persons with this view have fled to the city for the sake of its anonymity. There is evidence, however, that the face-to-face condition is a normal feature of the environment of society and that man tends to degenerate when it is missing. Just what this social mechanism is, how it acts, and how far back in human history it goes, can best be revealed to us by psychologists and students of society. With a few excerpts from their works bearing upon this subject our discussion will come to an end.

That the neighborhood was a factor in human welfare and should be treated as a social entity was early recognized by social settlement workers. For our first statement—made twenty-five years ago—we turn to a leader in that field.

It is, I believe, one of the most important and one of the most slighted considerations affecting all the social sciences, that the neighborhood relation has a function in the maintenance and progress of our vast and infinitely complicated society today which is not wholly beneath comparison with the function which it exercised in the creative evolution of that society. But there are today signs of a wholly new emphasis, both theoretical and practical, upon the function of the neighborhood as affecting the whole contemporary social process.<sup>1</sup>

<sup>1</sup> Woods, Robert A., "The Neighborhood in Social Reconstruction," in *Papers and Proceedings of Eighth Annual Meeting of the American Sociological Society*, 1913, p. 14.

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Everybody knows that parents are the earliest factors in the moulding of human character, but just what methods they should employ and what influences should be created around the child may not be so clearly understood. Here is an explanation offered by a social psychologist:

At a very early age a child shows susceptibility to the influence of the social environment, and a ready *response to approval and disapproval*. The reason is fairly obvious. During the first two or three years every event of importance to his well-being occurs through the ministration of other persons. Features, facial expressions, and vocal sounds are the regular accompaniments of these events. It is obvious, therefore, that, through the law of conditioned response, these social stimuli must acquire an early and universal significance in child life. Attitudes of approval, disapproval, command, and prohibition acquire a value as forms of social control which persist through life and compel our obedience to law and other social sanctions.<sup>1</sup>

The power of "herd disapproval" to which the child is inured in his home is also exercised after he goes out into the world. The traditional slipper or astringent scolding may no longer be its method, but there are other ways no less effective in their results.

W. I. Thomas has pointed out that the community—the people under whose scrutiny we lead our daily lives—shapes behavior patterns by *defining* situations and attaching praise or blame to the manner in which the individual meets them. By winks, sneers, coldness, disagreeable gossip, cutting epithets and ostracism the community exercises a constant control over the conduct of its members. How far back this regulation goes and how peculiarly it is a fundamental function of the neighborhood community are indicated in this statement by Thomas:

In addition to the family we have the community as a defining agency. At present the community is so weak and vague that it gives us no idea of the former power of the local group in regulating behavior. Originally the community was practically the whole world of its members. It was composed of families related by blood and marriage and was not so large that all the members could not come together; it was a face-to-face group. I asked a Polish peasant what was the extent of an "*okolica*" or neighbor-

<sup>1</sup> Allport, Floyd H., *Social Psychology*. Houghton Mifflin Co., Boston, 1924, p. 76.

## HISTORY AND SOCIAL SIGNIFICANCE

hood—how far it reached. "It reaches," he said, "as far as the report of a man reaches—as far as a man is talked about." And it was in communities of this kind that the moral code which we now recognize as valid originated. The customs of the community are "folkways," and both state and church have in their more formal codes mainly recognized and incorporated these folkways.<sup>1</sup>

A sociologist who did much to clarify the function of (what he called) the "primary group" was Charles Horton Cooley. Here are two excerpts from his writings, seven years apart:

We are dependent for moral health upon intimate association with a group of some sort, usually consisting of our family, neighbors, and other friends. It is the interchange of ideas and feelings with this group, and a constant sense of its opinions, that makes standards of right and wrong seem real to us.<sup>2</sup>

By primary groups I mean those characterized by intimate face-to-face association and co-operation. They are primary in several senses, but chiefly in that they are fundamental in forming the social nature and ideals of the individual. . . .

The most important spheres of this intimate association and co-operation—though by no means the only ones—are the family, the play-group of children, and the neighborhood or community group of elders. . . .

Of the neighborhood group it may be said, in general, that from the time men formed permanent settlements upon the land, down, at least, to the rise of the modern industrial cities, it has played a main part in the primary, heart-to-heart life of the people.<sup>3</sup>

If that equilibrium of internal urges which constitutes the character of the average individual is so dependent for its stability upon the reactions of an associational environment, we might well expect aberrations to occur when it is removed. In city slums the normal primary group mesh has broken down. It is not surprising then that many investigations have shown a high incidence of delinquency in congested and blighted areas. On this point three bits of evidence are offered. They come from a group of sociologists who,

<sup>1</sup> Thomas, William I., *The Unadjusted Girl*. Little, Brown and Co., Boston, 1923, pp. 43-44.

<sup>2</sup> Cooley, Charles Horton, *Social Process*. Charles Scribner's Sons, New York, 1918, p. 180.

<sup>3</sup> Cooley, Charles Horton, *Social Organization—A Study of the Larger Mind*. Charles Scribner's Sons, New York, 1909, pp. 23-25.

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individually and through their students, have carried on many studies in this field, and all three refer to conditions in Chicago, Illinois.

The mobility of city life, with its increase in the number and intensity of stimulation, tends inevitably to confuse and to demoralize the person. For an essential element in the mores and in personal morality is consistency of the type that is natural in the social control of the primary group. Where mobility is the greatest, and where in consequence primary controls break down completely, as in the zone of deterioration in the modern city, there develop areas of demoralization, of promiscuity, and of vice.

In our studies of the city it is found that areas of mobility are also the regions in which are found juvenile delinquency, boys' gangs, crime, poverty, wife desertion, divorce, abandoned infants, vice.<sup>1</sup>

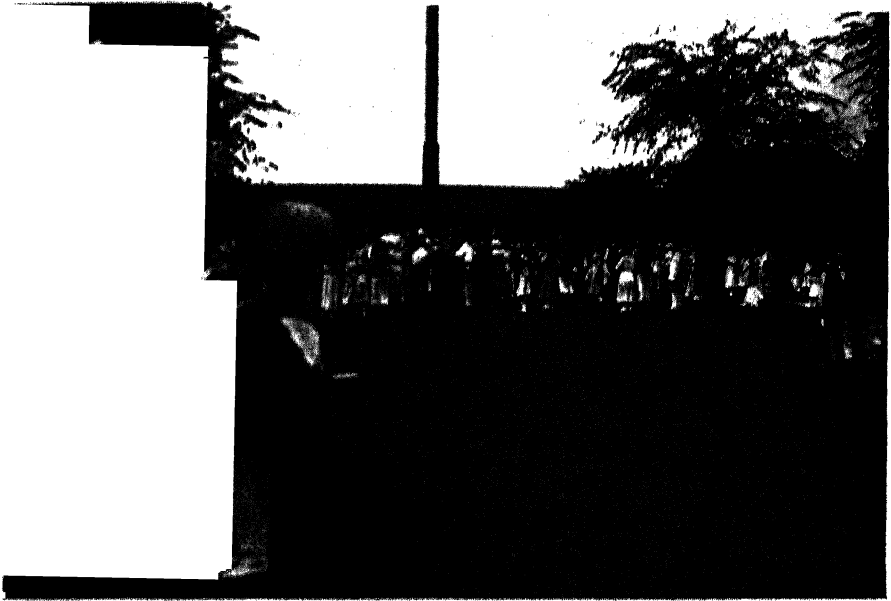
The second statement gives evidence that the rule of the gang is most prevalent in urban areas, where the primary group, or face-to-face community, environment is lacking. This lack is referred to as "social disorganization."

Since the great majority of boys' gangs in Chicago are composed of children of immigrants, it becomes obvious that the child of the immigrant suffers most from the lack of direction consequent upon social disorganization. Immigrant parents, who are largely peasants from rural and village areas in Europe, do not know how to control their children in a city environment. Besides the language discrepancy between parents and children, which increases the difficulties of family discipline, there is the general lack of a community code to support the control of the parents. Put in other terms, the children of immigrants tend to become quickly and superficially Americanized, becoming assimilated to the more racy and more vicious aspects of American life which they encounter in the disorganized and mobile areas in which they live.<sup>2</sup>

From the prominence given to the slum in discussions of delinquency, it might be inferred that poverty was a uniform characteristic of urban areas of demoralization. The following excerpt, describing a type of district to be found in all large cities, shows that such areas are not limited to the poorer sections.

<sup>1</sup> Park, Robert E., Burgess, Ernest W., and McKenzie, Roderick D., *The City*. University of Chicago Press, Chicago, 1925, p. 59.

<sup>2</sup> Thrasher, Frederic M., "The Gang as a Symptom of Community Disorganization," in *Journal of Applied Sociology*, September-October, 1926, vol. 11, p. 4.



Flag Pole Green



Market Square--Children's races in the early days. These games are now held in a park

SCENES IN FOREST HILLS GARDENS ON INDEPENDENCE DAY

Both of these photographs have been reproduced from New York Regional Plan, volume 7



*Photo by Stephen J. Zand*

#### AN INDEPENDENCE DAY SCENE IN FOREST HILLS GARDENS

"When in the course of human events. . . ." These words from the lips of a former member of the Sothern-Marlowe Company have for many years made the Declaration of Independence a living document for the people of Forest Hills. As a long-time director of the Gardens Players, a governor of the Community House and president of the Celebrations Association, this veteran actor has given generously of his leisure and ability to the community. A striking illustration of the congeniality of the face-to-face community for artistic talent

## HISTORY AND SOCIAL SIGNIFICANCE

The most striking thing about the local life of the Near North Side, as we have seen it in the light and shadow of the foregoing pages, is the fact that, from the lake on the east to the river on the west, there is scarcely an area that may be called a community. From the mansions of the Gold Coast to the tenements of Little Hell there is startlingly little of local feeling, consciousness, or action. The local areas of the Near North Side represent communities in process of disintegration, or areas, like the "world of furnished rooms," from which all traces of community life have vanished. The comparative status of local institutions and social agencies on the Near North Side significantly reflects this aspect of life in its local areas, and the possibility of anything approximating community action in these areas.

In the village community, the church, the school, and the "town meeting" or political organization exist as community institutions and function under community sanctions. But on the Near North Side the church has ceased to bear any vital relationship to local life; the school, while still in the "community," is part of a great system of schools, centrally directed, and little interested in local problems; and the "town meeting" has become a ward club, where "the boys" and political jobholders gather to take orders from the ward boss, and perhaps to "sit in" on a few hands of poker.<sup>1</sup>

In regard to a change of residence on the part of a normal family, transplantation becomes a much easier process when the move is from a lively local community into a neighborhood unit. The array of associations in the new neighborhood will be very similar to the one that was left. There will generally be a women's club, boy and girl scouts or camp fire girls, a little-theater group, property owners' association, and various cultural bodies. All will be looking for members and the new family will find places in which its individual abilities will soon discover outlets. Under such circumstances the digging up of roots will not cause so serious a disturbance to the personality.

So far in this section we have dealt with the effects of environment only in bringing about conformity with the social code. An important aspect of life, it is true, but a negative one. We might have a state in which there was never any infraction of the law—where nobody ever used a knife except to cut bread or meat cross-

<sup>1</sup> Zorbaugh, Harvey W., *Gold Coast and Slum*. University of Chicago Press, Chicago, 1929, p. 182.



wise—and yet have a dull and unprogressive society. That which makes existence bright, exciting, and colorful is variation, not conformity; difference, rather than sameness. When an individual rises to a hitherto unattained professional height, achieves an unexcelled proficiency in an art, or masters a personal situation of unusual poignancy—then he has made progress and life becomes richer than it was. In these positive aspects of the growth of personality the neighborhood community also plays a unique and important role.

In the case of the actor, musician, painter, or playwright individual development depends largely upon the environment in which fate has placed him. His peculiar talent never emerges full blown. The youngster's ability to sketch or fiddle may seem only mildly significant to his immediate family. In less well-to-do homes it is generally when persons outside the home circle begin to comment upon a boy's ability that his elders are impressed and consideration is given to ways of providing him with further training. Actors and actresses often first discover their histrionic abilities in some chance local production, and many an individual with latent dramatic talent has never discovered it at all, or not until it was too late to develop it. Every art that entertains requires an audience in all the stages of development. The critical period for the novice is usually the stage between fireside appreciation and professional box-office recognition. It is that gap in one's development that a neighborhood audience is so well constituted to fill.

The artist, however, is not the only type whose personality is nourished by a primary group environment. An individual aspiring to any kind of public leadership can find in the organized activities of a neighborhood community center many opportunities for learning and practice, chances to speak in public, to serve on committees, to organize the programs of formal meetings. If he wants to promote a cause he can there acquire the art of propagandism. Young men, fresh from college, who look forward to a public career can begin their apprenticeship at once in the neighborhood community. Any business man occupying a position in which the ability to organize entertainments would be a valuable asset can attain that gift easily by joining the executive board of a community center. The ease with which a novice, desiring to pursue an evening voca-

## HISTORY AND SOCIAL SIGNIFICANCE

tional course, can join with others in getting an instructor and forming a class has already been mentioned.

In the avocational sphere, there are also many opportunities. Any pursuit that is furthered by joining with others, whether it be learning a foreign language, studying photography, making stamp collections, practicing tap dancing, trimming hats, or playing badminton—can be followed with greater facility in a district where neighbors know one another, and there is a common structure in which they can meet. The "friction of distance" that takes the energy out of so many citywide societies of special interests is absent.

It is commonly believed that it was the machine which dehumanized the city. If so, a kind of poetic justice would be served if now the machine, in the process of rebuilding the city, should restore its friendly atmosphere.

In addition to the foregoing discussion, as part of his argument the writer has outlined a method of co-operation between government and private enterprise in an industrial field only *partly* converted to modern technology whose products are greatly needed by our people. The goal at which he has aimed is a combination in which the respective abilities of each factor would find full expression and from the output of which all sections of the country would be benefited.

## APPENDICES

## APPENDICES

### A. CALCULATION OF STORE FRONTAGE

IN CHAPTER III, dealing with the neighborhood unit formula, it was stated<sup>1</sup> that several studies of shopping requirements had led to the conclusion that one store per 100 of population was a fair working rule. That figure was, as will be seen, an estimate reached through the balancing of the findings in three studies of this subject, each of which will now be briefly described.

#### NEW YORK REGIONAL PLAN STUDY

How shall the number of stores required by a given population be determined? The method employed<sup>2</sup> in the study mentioned was that of calculating, as accurately as possible, the number of people per kind of store in the average urban environment. Data were secured from seven cities—of from 100,000 to 3,000,000 population—and in each case the average number of persons served by each of 31 types of business concern was computed. From the averages of the seven cities, another average for one city was derived. Taking this as a standard, and assuming a store width of 25 feet, it was computed that a population of 6,000 people would require 3,000 feet of store frontage or 50 feet (two stores) per 100 persons. From the limitations of the method—which was fully exhibited—it was evident that even as a statement of existing store distribution the conclusion would have to be regarded as approximate. The conclusion was, however, substantially corroborated in a study made by Coleman Woodbury covering business districts in 40 cities of the Chicago metropolitan region.<sup>3</sup> Even so the estimate was not set up as an accurate city planning guide but characterized as follows:

It should probably be regarded as a maximum, rather than an optimum, standard by the planner of a neighborhood unit. Even slight observation

<sup>1</sup> See p. 68.

<sup>2</sup> New York Regional Plan, vol. 7, p. 76.

<sup>3</sup> "The Size of Retail Business Districts in the Chicago Metropolitan Region," in the *Journal of Land and Public Utility Economics*, vol. 4, February, 1928, pp. 85-91.

## HOUSING FOR THE MACHINE AGE

shows that existing business sections often include more stores in a certain line than the population can adequately support. Merchandising methods are changing and will continue to change. Local conditions vary. There can be no doubt, however, of the possibility of developing reliable data if continuous and scientific investigation of this subject is maintained.<sup>1</sup>

Fortunately research in this field has continued. A valuable treatment<sup>2</sup> of this whole subject was recently made by Clarence S. Stein an architect, and Catherine Bauer, a writer on housing. Mr. Stein, with the late Henry Wright, planned the well-known Radburn, New Jersey, a town designed "for the motor age" and constructed by the City Housing Corporation of New York.

### STEIN-BAUER STUDY

This investigation was made for the purpose of learning the retail facilities which will be required in the northern section of Radburn when it shall have attained a population of 10,000 people. It places a salutary emphasis upon the fact that the existing distribution of stores in cities and towns is not a safe guide for the zoning of business in new residential developments. In support of this view, the authors marshal convincing evidence of the economic ill-health in the present shopping world. According to the 1929 Census of Distribution, from which they quote, one-half of the stores of the country had annual sales of less than \$12,000. When the items of rent, wages, and return upon investment are considered it is difficult to understand how any store can exist upon a sales volume of less than \$1,000 a month. The fact that 750,000 stores actually do average less than that amount helps to explain the tremendous mortality among business concerns. These bankruptcies mean huge losses to wholesalers, landlords, and the community. Fleeting shoestring enterprises often leave unsightly structures in their trail.

In their approach to the problem as to the number and kinds of stores to be planned for in a given neighborhood project, the authors sought to learn: (1) the total sums likely to be spent by an expected

<sup>1</sup> New York Regional Plan, vol. 7, p. 81.

<sup>2</sup> Stein, Clarence S., and Bauer, Catherine, "Store Buildings and Neighborhood Shopping Centers," in the *Architectural Record*, vol. 75, February, 1934, pp. 174-187.

## CALCULATION OF STORE FRONTAGE

population for different kinds of goods, and (2) the number of stores in each line required to handle efficiently the probable volume of local business. The method employed is ingenious and the professional planner will want to turn to the details set forth in their article. A population of 10,000 people would require, according to calculations of the authors, a total of 70 stores, distributed among some 30 lines of business. They regarded this result as having validity only for Radburn, or some community of similar characteristics, when grown to a 10,000 population. The main contribution of their study, they believed, was that of *method*.

### SCHULTZ STUDY

In an article on "Community Planning: Number of Stores,"<sup>1</sup> the results of "recent surveys" of existing stores in 12 large cities were given. When averaged they yielded the figure of 1.47 stores per 100 persons. Mr. Schultz also stressed the economic waste occasioned by superfluous stores and insisted that any in excess of 1.47 were bound to fail. His article contains some data upon family income and the ratios of business lines which would be helpful to a professional neighborhood planner, especially one who was following the Stein-Bauer method.

Here then are three pertinent studies: Regional Plan, Stein-Bauer, and Carlton Schultz. What do they tell us about the number of stores that should be provided in a given neighborhood unit? Obviously we are not in the sphere of 1/1,000-inch measurements. Even the most detailed of these three researches—the Stein-Bauer study—had to employ some estimates. In the social sciences it is almost never possible to make precise determinations.

However, if we can fix high and low points in any investigation, we can feel confident that the desired quantity is somewhere between those figures. Let us see whether the results reached in these studies are significant from this standpoint. In view of the Schultz finding of 1.47 stores per 100 persons, it would seem that the Regional Plan finding of two stores per 100 was too generous, even though it was corroborated by the Coleman Woodbury investigation. If, then, we take 1.47 as our high determination we

<sup>1</sup> Schultz, Carlton, "Community Planning: Number of Stores," in *Real Estate Record*, vol. 139, January 16, 1937, pp. 35-36.

can feel that we are following a conservative course. We know it is high for our purpose because it is supposed to represent the existing distribution of stores, and that, according to the census data quoted by the Stein-Bauer report, contains too many inefficient and unneeded establishments to serve as a guide in allocating business frontage in a model development.

What is the probable significance of the Stein-Bauer finding of .70 store per 100 population? Should it be regarded as probably low or probably high for our purpose? The authors of the study state that their conclusion can be regarded as significant only for communities having similar characteristics to Radburn; and indeed their report discloses the fact that one of the factors in their calculations was the merchandising experience of a number of establishments in places of the same general population class.

Obviously, differences in the consumption habits and the merchandising practices of the neighborhood would affect the number of needed stores. In an urban community where a large proportion of the people are living in apartment houses, it is to be expected that there would be a greater demand for delicatessen stores, women's wear shops, beauty parlors, and other personal service shops than would exist in a settlement where the traditional single-family way of life still prevails.

The Stein-Bauer study is based on *town* conditions. It seems likely that its finding is low from the standpoint of urban commercial practices and consumption habits. When it comes to determining just where, between 1.47 and .70, the right figure lies, we are dealing with mere personal opinion. The writer, influenced by the evidence offered by these three studies and many unidentifiable impressions, believes that the average of these two quantities—in round figures, one store per 100 population—is the best available guide for allocating business frontage in an urban neighborhood community. Of course, this is only a tentative determination. It should be corrected in the light of further studies and the experience of many planned communities.

In applying this ratio, the planner should take into consideration variations in widths of typical stores. Useful data on this point are presented in the Stein-Bauer article.

## B. DIMENSIONS OF AREAS AND FINANCIAL ASPECTS OF PLANS PRESENTED IN THE TEXT

THE financial data set down below in connection with the five unit *projets* which were presented in Chapter V—on apartment house neighborhood units—are the by-products of “paper” or theoretical studies. Naturally they do not have the validity of reports based upon actual, constructed projects. They are in the nature of preliminary estimates in which experience, obtained in earlier building operations and reduced to general “overall” terms, is applied as a guide in a contemplated operation.

The land and construction costs, expense of maintenance, and rental scales—all have come out of experience in New York City. Planners and builders in other cities can, however, insert their own local figures in studies of similar projects that are suited to their population requirements, and arrive at useful conclusions.

In the case of the Winfield and the World's Fair district studies, land costs were taken as twice and as one-and-one-half times, respectively, the assessed valuations of the actual areas surveyed. The Winfield study was carried out in 1933, and the land value assumed then by its authors seemed too generous when in 1937 they took up investigation of the unimproved area adjacent to the site selected for the 1939 World's Fair. The land costs assumed in the Four- and Five-Block studies are those which, the architect believes, represent fair market values of land in certain sections of New York's Lower East Side. It is doubtful that a developer could, through private negotiations, assemble tracts as large as those shown in our studies at the same cost figures.

Construction costs have been taken from local building experience and have been checked against similar figures developed by the New York State Housing Board. In most instances they are based upon smaller projects than those to which they have here been applied. Costs of maintenance have also been compared with State Housing Board experience.

Rental scales have been based upon those actually in use in New York apartments of similar physical characteristics. But in no instance have the suites which lent the study their rent figures been



## HOUSING FOR THE MACHINE AGE

surrounded by environments as attractive as those shown in our perspectives. With such surroundings they would either have brought higher prices or would never have suffered from vacancies.

Income from shops was figured on a straight rental basis in the first three plans presented. The Four- and Five-Block studies were, however, not carried far enough to cover this detail. Fortunately, information on this point is available from another study, made by professional developers, namely, that of "Rutgers Town," a \$41,000,000 "low-cost housing plan for the Lower East Side" of New York City to accommodate something over 6,000 families. This estimate was prepared in 1933 by the Rutgers Town Corporation,<sup>1</sup> for construction under the requirements of the New York State Housing Board, and the expected annual income from shops was carefully calculated. It was set at \$110 per lineal foot of shops averaging 16.6 feet front, and one shop was to be provided for each 100 of population. This is the same ratio, it will be noted, as that reached by the process of compromise in Appendix A. Rents were to be charged on the basis of a percentage of sales, a method that is being used by an increasing number of store owners.

Applying this rule to the Four-Block plan, with its population of 6,338, the annual income from shops (10 per cent deducted for vacancies) would amount to \$104,159. The Five-Block plan, with a population of 4,472 (4 persons each for 1,118 suites) and using the same vacancy factor, would have a store income of \$73,493. Of course, the carrying charges on the cost of constructing the shops would have to be deducted from these figures. Still, it is believed that the net income from shops, when added to the income shown in the financial set-ups, would bring the total dividends in each case to well over 7 per cent, especially in view of the greater consuming power of the families to be housed in the higher-priced apartments. The corporation developing a neighborhood community should be able to reap the benefit of the store values which it creates and it can if its shopping districts are skilfully planned.

A breakdown of the income figures for Plans D and E can be found on p. 41 of *The Rebuilding of Blighted Areas* (see footnote on p. 124). In that volume, however, the set-up for Plan D was shaped to suit the requirements of the New York State Housing

<sup>1</sup> Robert W. Aldrich Rodger, President, 20 East 40th St., New York City.

## DIMENSIONS OF AREAS, FINANCIAL ASPECTS

Board: only 6 per cent dividend, buildings exempted from taxation, and rents limited to \$11 per room in Queens Borough. In this discussion it seemed more pertinent to treat this as a commercial project, and as a consequence of the increased charges it has been necessary to raise the rent of apartment rooms to an average of \$14.50 each per month.

Essays these studies are—essays in the possibilities of reshaping urban life provided city planning intelligence and governmental power will open up channels within which constructive enterprise can display its ability and its energy. If they stimulate others to check these conclusions and investigate still further in this field, perhaps the rebuilding of our cities—now dragging so unconscionably—will be hastened.

### 1. WORLD'S FAIR DISTRICT—THE MATHEWS PLAN (PLAN B)<sup>1</sup>

#### AREA RELATIONS

<i>Existing Areas</i>	<i>Square feet</i>	<i>Acres</i>	<i>Per cent</i>
Land—Mapped blocks	2,251,498	51.55	64.5
Streets (including 40 feet of bounding streets)	1,239,300	28.45	35.5
Total	3,490,798	80.00	100.0
<i>Proposed Areas</i>			
Streets	895,758	20.54	25.0
Buildings:			
Elevator apartments	67,100		
Walk-up “	322,750		
Stores	278,932		
Garages	110,860		
School	35,269		
Total—Buildings	814,911	18.70	23.0
Playfield	441,525	10.10	13.0
Courts	1,338,604	30.80	39.0
Grand total	3,490,798	80.14	100.0
Gross coverage	23 per cent		
<i>Population (at one person per room)</i>	<i>Persons</i>	<i>Sq. ft. per room</i>	
Elevator apartments	3,630	275	
Walk-up “	4,560	280	
Over-store “	1,070	280	
Total	9,260		
Density	115 persons per acre		

<sup>1</sup> Discussion of this plan in relation to the present volume will be found in Chapter V, p. 122.

# HOUSING FOR THE MACHINE AGE

## FINANCIAL ASPECTS

### Costs

<i>Land</i>	<i>Square feet</i>	<i>1936 assessed valuation per square foot</i>	<i>Total assessed valuation</i>
Area of mapped blocks	2,251,498	.7133	\$1,605,993
Improvements in area			56,500
Total			1,662,493
Assessed valuation times 1.50			2,493,739
Less school site (2 acres or 87,120 sq. ft. at 1.07 per sq. ft.)			93,218
Total estimated cost of land			\$2,400,521
Land improvement and utilities			
Grading (moving top soil twice at .80 cu. yd.)			\$349,430
Paving (streets, curbs, sidewalks and walks)			1,535,359
Water mains and sewers (9,260 rooms at \$13.64)			126,306
Landscaping			80,000
Total for improvements			2,091,095
Total for land and improvements			\$4,491,616

<i>Buildings</i>	<i>Floors</i>	<i>Ceilings Feet</i>	<i>Cubage</i>	<i>Cost per cubic foot</i>	<i>Cost</i>
6 elevator apts.	15	10	10,916,000 <sup>1</sup>	.60	\$6,549,600
28 walk-up "	4	10	16,137,500	.38	6,132,250
Over-store "	2	10	3,010,000	.33	993,300
Stores (126 with 25' front)	1	12	3,347,184	.21	1,230,090
" basements	1	9	2,510,388	.21	
Garages (504 spaces)	1	13	1,441,180	.38	547,648
Total cost of buildings					15,452,888
Cost of land and buildings					\$19,944,504
Cost of development in round figures					\$20,000,000

## MAINTENANCE AND INCOME

<i>Maintenance</i>	<i>Rooms</i>	<i>Annual per room</i>	<i>Total</i>
Elevator apartments	3630	\$60	\$217,800
Walk-up "	4560	55	250,800
" over stores	1070	55	58,850
Stores (15 per cent of income, \$557,864)			83,679
Garages (5 per cent of income, 60,480)			3,024
Courts and playfield (1¢ sq. ft. per yr.)			17,801
Supervision play areas, policing, etc.			16,000
Total			\$647,954

<sup>1</sup> Includes 30,000 cu. ft. for elevator penthouse for each building.

## DIMENSIONS OF AREAS, FINANCIAL ASPECTS

<i>Income</i>	<i>Rooms</i>	<i>Per month</i>	<i>Total for year</i>
Elevator apts. 1st 5 floors	1210	\$20	\$1,147,080
2nd 5 "	1210	27	
3rd 5 "	1210	32	
Walk-ups 1st floor	1140	20	1,012,320
2nd "	1140	19	
3rd "	1140	18	
4th "	1140	17	
Apts. over 2nd floor	535	18	224,700
stores 3rd	535	17	
Stores—278,932 sq. ft. at \$2.00 per sq. ft. per yr.			557,864
Garages—504 spaces at \$10 per mo.			60,480
			<u>\$3,002,444</u>
Less 8 per cent for vacancies			240,195
Total income			<u>\$2,762,249</u>

### FINANCIAL SET-UP

1. Total cost of development		\$20,000,000
2. Mortgage ( $\frac{2}{3}$ of cost)		13,333,333
3. Equity ( $\frac{1}{3}$ of cost)		6,666,667
4. Mortgage interest at 5 per cent	\$666,666	
5. Amortization 2 per cent of mortgage	266,666	
6. Dividend, 8 per cent of equity	533,333	
7. Taxes, .0284 of cost	568,000	
8. Federal tax, 12 per cent of dividend	63,999	
9. Maintenance	<u>647,954</u>	
10. Total annual expense		2,746,618
11. Total annual income		2,762,249

## 2. WINFIELD DISTRICT

### AREA RELATIONS IN PLANS D AND E<sup>1</sup>

	<i>Plan D</i>	<i>Plan E</i>
Number of persons housed	6,000	5,000
Average area (square feet) per apartment	1,108	1,170
Number of persons per gross acre	144.7	120.6
Net coverage (per cent)	26.0	26.6
	<i>Per cent of total area</i>	
Streets	27.2	35.3
Buildings (gross coverage)	18.9	17.2
Recreation spaces	22.1	20.2
Open space around buildings	<u>31.8</u>	<u>27.3</u>
Total	100.0	100.0

<sup>1</sup> Discussion of Plans D and E as mentioned in the present volume will be found in Chapter V, p. 126.

# HOUSING FOR THE MACHINE AGE

	<i>Acres in recreation areas</i>	
School grounds	3.16	1.60
Football or athletic fields	2.19	2.76
Common	3.10	2.07
Plaza	.70	..
Tennis courts and pool	..	1.94
Total	9.15	8.37

Total area of project, including  $\frac{1}{2}$  of bounding streets, 41.47 acres

## FINANCIAL ASPECTS<sup>1</sup>

### PLAN D

1. Total cost	\$12,256,170
2. Mortgage, $\frac{3}{4}$ cost	8,170,780
3. Equity, $\frac{1}{4}$ cost	4,085,390
4. Mortgage interest at 5 per cent	\$408,540
5. Amortization, 2 per cent of mortgage	163,410
6. Dividend, 7 per cent of equity	285,980
7. Taxes, 2.7 per cent of $\frac{3}{4}$ cost	248,190
8. Federal tax, 12 per cent of dividend	34,320
9. Maintenance	323,710
10. Total annual expense	1,464,150
11. Total annual income	1,492,726

### PLAN E

1. Total cost	\$16,020,590
2. Mortgage, $\frac{3}{4}$ cost	10,680,400
3. Equity, $\frac{1}{4}$ cost	5,340,200
4. Mortgage interest at 5 per cent	\$534,020
5. Amortization, 2 per cent of mortgage	213,610
6. Dividend, 7 per cent of equity	373,810
7. Taxes, 2.7 per cent of $\frac{3}{4}$ cost	324,420
8. Federal tax, 12 per cent of dividend	44,860
9. Maintenance	462,310
10. Total annual expense	\$1,953,030
11. Total annual income	\$1,954,310

<sup>1</sup> In The Rebuilding of Blighted Areas the figures shown in the right-hand column were rounded off to the nearest 10. Here they have been set down unchanged, except as explained in the paragraph regarding income figures on page 230.

## DIMENSIONS OF AREAS, FINANCIAL ASPECTS

### 3. METROPOLITAN SLUMS—(A) FOUR-BLOCK NEIGHBORHOOD PLAN<sup>1</sup>

#### AREA RELATIONS

Dimensions of plot—670 ft. X 940 ft.	629,800 sq. ft. (14.4 acres)
Area of school site and school-yard	<u>43,350</u> " "
Land purchased	586,450 " "
Inside building areas:	
Covered by buildings	4.7 acres
Open space	<u>9.7</u> "
Total	14.4 "
Percentage covered by buildings	32.6
Main garden	4 acres
Building heights:	
9 towers— 21 stories	
4 buildings— 16 "	
Other buildings—7 and 10 stories	

#### ACCOMMODATIONS

Automobile storage for approximately 120 cars in recreation building—first floor and basement -and additional storage, could be easily arranged.

Total number of apartment suites	1,748
" " " rooms	8,060
Suites range from 2 to 7 rooms, with an average of 4.6 rooms, accommodating 3.6 persons	
Total population	6,338 persons

#### FINANCIAL ASPECTS

##### *Cost of Project*

Land—586,450 sq. ft. at \$8.00	\$4,691,600
Construction—8,060 rooms at \$2,200	17,732,000
Amenities: Recreation building and facilities, garage, gardens, drives	<u>1,000,000</u>
Total cost of project	\$23,423,600
Equity— $\frac{1}{3}$ of cost	\$7,807,867
Mortgage— $\frac{2}{3}$ of cost	\$15,615,733

##### *Annual Expenses*

Taxes—.0276 of total cost of project	\$646,491
Dividend—6 per cent on equity	468,472
Federal tax—12 per cent of dividend	56,217
Interest on mortgage—5 per cent of \$15,615,733	780,786
Amortization of mortgage—2 per cent of \$15,615,733	312,314
Operating 8,060 rooms at \$75	604,500
Vacancies—5 per cent of income	<u>154,752</u>
Total annual outgo	\$3,023,532

Surplus	<u>71,508</u>
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Gross Income—8,060 rooms at \$32 per month, average	\$3,095,040
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<sup>1</sup> See Chapter V, p. 132, where this plan is discussed.

## HOUSING FOR THE MACHINE AGE

### 3. METROPOLITAN SLUMS—(B) FIVE-BLOCK APARTMENT HOUSE UNIT<sup>1</sup>

#### AREA RELATIONS

Five blocks and four cross streets	830,800 sq. ft. (19.07 acres)
Two cross streets not taken	78,000 " "
Given to boundary streets	50,800 " "
Land developed	702,000 " "
	<hr/> 830,800 " "
Land covered by buildings	6.5 acres
Open space	9.9 " "
	<hr/> 16.4 " "
Percentage of land covered	40.
Area of three central courts	5.3 acres

#### FINANCIAL ASPECTS

##### *Cost of Project*

Land—702,000 sq. ft. at \$9.50 <sup>2</sup>	\$6,669,000
Cash for supplementary construction	331,000
Landscaping	100,000
Construction—6,708 rooms at \$3,200	<u>21,465,600</u>
Estimated cost of project	\$28,565,600
Equity— $\frac{1}{3}$ of cost	\$9,521,900
Mortgage— $\frac{2}{3}$ of cost	\$19,043,700

##### *Annual Expenses*

Taxes—.0276 of total cost of project	\$788,410
Dividend—6 per cent on equity	571,314
Federal tax—12 per cent of dividend	68,558
Interest on mortgage—5 per cent	952,185
Amortization of mortgage—2 per cent	380,874
Operating 6,708 rooms at \$70	469,560
Vacancies—5 per cent of income	<u>173,290</u>
Total annual outgo	\$3,404,191

##### Surplus

Gross Income—1,118 apartments at \$3,100	er. annual rent	<u>\$3,465,800</u>
------------------------------------------	-----------------	--------------------

<sup>1</sup> For fuller description of this unit see Chapter V, p. 133.

<sup>2</sup> The figure of \$9.50 per sq. ft. is to be regarded as the reasonable, indicated maximum price, provided the "right" site were available.

## C. QUESTION OF UNITS SMALLER THAN SCHOOL DISTRICT SIZE

IN THE Real Estate Record of August 6, 1938, an article appeared entitled, "A Land Assemblage Technique for Slum Clearance by Commercial Enterprise." The author is Arthur C. Holden, member of the New York architectural firm of Holden, McLaughlin and Associates, and a well-known writer in the field of housing. The article is reprinted here in toto, for three reasons:

1. It suggests that the New York City Housing Authority—and housing authorities in other cities possessed of similar powers—are now in position to secure the aid of private enterprise in clearing slums and transforming land from a blighted to an economic use. There is no valid reason why cleared slum land should *all* be devoted to rehousing families of the lowest incomes. An authority has the power to sell or lease such land for *other* purposes. All that these authorities seem to need is the *will* to act, plus the adoption of a positive policy, which can enlist the assistance of commercial organizations.

2. The article presents a series of housing studies, based upon an actual project, and showing the economic aspects of an identical ground plan when loaded with different building volumes. Since the basic plan covers three blocks, Mr. Holden's paper supplements the discussion of Four- and Five-Block layouts contained in Chapter V<sup>1</sup> and Appendix B<sup>2</sup> of the present volume.

3. The three diagrams shown in this article do not and were not intended to meet the school district standards of New York and other large cities. The author's presentation, however, makes standards so significant that it raises the question of the value of insisting upon the elementary school district requirement in the development of neighborhood units.

The first two points are amply treated in the article itself and no further comment is needed. After Mr. Holden's paper—which follows—the third point will be briefly discussed.

<sup>1</sup> See pp. 132 and 133.

<sup>2</sup> See pp. 235 and 236.



## HOUSING FOR THE MACHINE AGE

Any real improvement of blighted properties presupposes the ability to plan on a larger scale than the individual lot, and preferably to plan on a neighborhood basis. Improvement of the technique of land assemblage is therefore a prerequisite to large-scale enterprise. Replanning and rebuilding of slum areas has not taken place on any large scale, due on the one hand to inability to pay off recalcitrant owners who hold out for a high price, and on the other to backwardness in developing governmental aid for assemblage of property.

Some types of aid which already have been developed are scarcely appreciated. The machinery at hand, when better understood, can be improved upon vastly. For example, the New York City Housing Authority possesses the power to acquire real estate by purchase, lease, or the exercise of the power of eminent domain. In assembling eleven city blocks for the Williamsburg housing project in Brooklyn, the authority demonstrated the effectiveness of its powers. The procedure was as follows: The authority began to assemble the property by acquiring options and determining value. It then petitioned the city to institute condemnation proceedings. The city took title to the land and turned it over to the federal government for the cost of acquisition.

Law permits condemnation proceedings to be brought either directly by the authority or by the city. The housing authority recently assembled two other large tracts, one in Red Hook, Brooklyn, and one in Queens, north of the bridge terminal.

This suggests a wider application of the powers of the New York City Housing Authority to stimulate the assembling of property in blighted areas for large-scale replanning and reconstruction by other agencies. It must be recalled that the purpose of the authority includes both slum clearance and low-cost housing. For example, the authority might adopt a policy designed to clear slums in the congested sections of Manhattan and to develop low rental housing on cheap land in Queens.

It is possible for the authority to act as agent for the assembling of land for large-scale housing corporations operating in the medium-rent field, and to perform for them the same type of assemblage service as was so successfully utilized at Williamsburg. By this means the authority may provide for the clearance of slum areas and their conversion to an improved type of use. Demolition may be concentrated in blighted areas to be assembled and keyed to the authority's low-cost construction program. Projects may be set up for the clearance of slum areas, the land to be replanned or converted to other uses as deemed best for public policy.

The municipal housing authorities law of New York State provides for the sale of property by the authority to "public limited dividend housing

# UNITS SMALLER THAN SCHOOL DISTRICT SIZE

## WILLIAMSBURG HOUSES BLOCK III

COMMERCIAL BASIS

STORY

### COSTS

RWA BULLETIN SEPTEMBER 1937  
1750 ROOMS @ \$141 \$2,609,000  
LAND @ \$4.84 per sq. ft. 1,162,000  
CASH 200,000  
INDICATED COST \$3,971,000

### ANNUAL

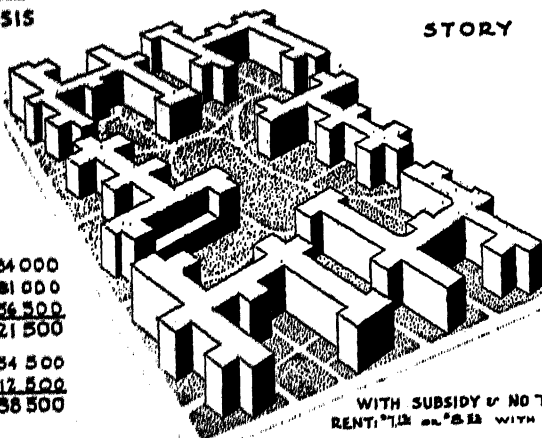
MAINTENANCE @ \$4.88 PER RM. \$84,000  
TAXES @ .027 ON \$3,000,000 81,000  
INT. + AMORT. @ 6% COMB. 1937 156,500  
\$321,500

DIVIDEND @ 4% ON LAND 54,500  
SURPLUS & VACANCY 12,500

REQUIRED RENT \$388,500

### RENTS:

\$18.50 PER RM. AVERAGE  
\$57.00 FOR 3 ROOMS  
\$72.00 FOR 4 ROOMS



WITH SUBSIDY & NO TAXES:  
RENT: \$12.00 per room WITH SERVICE

corporations." In respect to these corporations the law says, "Surplus or excess of the par value of the stock together with cumulative dividends at the rate of 6 per centum per annum shall upon dissolution revert to the authority. . . . The restrictions contained in this act as to the type of project, and the amounts to be represented by mortgage, mortgage bonds, income debenture or stock, shall be inapplicable to a corporation formed to purchase or lease property from an authority."

Assuming that a commercial development corporation approached the authority and offered to take the short-term notes of the authority, the proceeds of these notes could be used to pay for assemblage and for demolition awards. The development corporation then would utilize the notes to purchase the land from the authority. Assuming all costs to be similar to those encountered in Williamsburg, a duplicate of one of the super-blocks of the Williamsburg project could be put on the market commercially at a rate of \$18.50 per room per month, which is under the commercial rate of housing for equivalent facilities. It is significant that this figure is approximately \$10 per room per month higher than the rental paid by the present occupants of Williamsburg, who enjoy the benefit of governmental subsidy. In other words, on an economic basis the 5,500 rooms at Williamsburg should bring in annually \$660,000 more than is now received.

# WILLIAMSBURG REDESIGNED FOR 6 STORY BLDGS.

6 STORY  
ELEVATOR

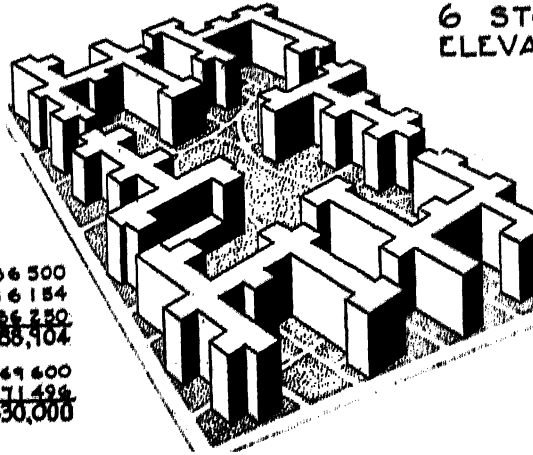
## COSTS

2425 ROOMS @ \$1800	\$4,365,000
LAND @ \$6 PER SQ. FT.	1,440,000
CASH	300,000
INDICATED COST	\$5,677,500

## ANNUAL

MAINTENANCE @ \$52 PER RM.	\$126,500
TAXES @ .027 ON \$4,807,000	116,184
INT. + AMORT. @ 6% COMB. COST	236,250
	\$488,934
DIVIDEND @ 4% OF LAND	\$49,600
SURPLUS + VACANCY	71,496
REQUIRED RENT	\$630,000

\*\$20 PER RM. AVERAGE  
\*63 PER 3 ROOMS  
\*76 PER 4 ROOMS



This sum would be available to retire the mortgage, pay interest and taxes, and carry the project without a subsidy from taxpayers.

The original purpose of the housing law was to offer the benefits of state aid in the assemblage of land as well as other benefits to investors who agreed to provide medium-rent housing and to forego possible advantages of speculative gain.

The first of the three diagrams presented herewith shows one of the actual super-blocks of the Williamsburg project. It is composed of three ordinary city blocks with the area of the two intervening streets utilized as recreational space.

The second diagram shows the same super-block area developed with similar buildings carried to six stories in height and equipped with automatic elevators. Such a development could be situated in the lower east side of Manhattan on land acquired at a rate of \$6 a square foot. Assuming that these six-story elevator buildings were offered to the public at a rent of \$20 per room per month, it would be possible to provide this superior type of apartment with community recreational features in an assured, permanent, well designed neighborhood at no more than is now paid for the typical apartment built on a 100 by 100 or 100 by 200 foot lot without neighborhood protection, and where courts and yards can be little greater

UNITS SMALLER THAN SCHOOL DISTRICT SIZE

# WILLIAMSBURG REDESIGNED WITH 6 TOWERS

16 STORY  
and  
4 STORY

## COSTS

1408 ROOMS @ \$1491	
1800 ROOMS @ \$1700	
CONSTRUCTION	\$4,781,328
COST OF LAND @ \$6 34/100	1,440,000
CASH	<u>300,000</u>
PROJECT COST	\$6,491,328

## ANNUAL:

MAINTENANCE @ \$82 PER RM.	\$184,336
TAXES @ .027 ON \$6,493,045 (60%)	133,732
INT. + AMORT. @ 6% MONEY COST	<u>285,079</u>
	\$573,147

DIVIDEND @ 4% OF LAND	\$49,600
SURPLUS & VACANCY	<u>56,378</u>

REQUIRED RENT \$699,072

## RENTS:

16 STORY TOWERS - \$22 PER RM. AVER. -	\$69.22 FOR 3 RMS.
	\$80.22 FOR 4 RMS.
4 STORY WALKUPS - \$17 PER RM. AVER. -	\$54.22 FOR 3 RMS.
	\$64.22 FOR 4 RMS.

than the minimum required by law. In the accompanying diagram the costs have been figured on the basis of the actual costs of governmental construction in Williamsburg. Attention should be called to the probability that private enterprise could reduce construction cost per room, and that lower rents than those indicated would be possible.

The third diagram indicates a similar design for a super-block where two classes of accommodations are mingled: sixteen-story elevator towers offering apartments at an average of \$22 per room per month and four-story walk-ups offering apartments at \$17 per room per month. By offering finer facilities in the towers and designing the project to serve a broader income group, provision may be made to accommodate a reasonable representation of the low-income classes in a development which is self-supporting. Thus governmental aid in the assemblage of land could be used to further slum clearance and rebuilding on an economic basis.

This technique, which is similar to that advocated by Clarence A. Perry

## HOUSING FOR THE MACHINE AGE

for the assemblage of property by the city and its resale to a developing corporation, offers great possibilities for large-scale planning and large-scale housing operations. In some blighted areas there remains the possibility that the majority of present owners and mortgagees may agree to pool their existing holdings in a voluntary co-operative corporation. In such cases, aid by the housing authority may be extended to complete the assemblage by the condemnation of holdout properties which are essential for purposes of slum clearance.

It also should be pointed out that the aid given by a housing authority in the assembling of property in blighted areas is a service which can be paid for through resale for other uses of many properties to be cleared of slums. A profit may be realized by the authority, and the exercise of the governmental powers delegated to the authority should be justified on the ground of slum clearance alone. In cases where the authority can realize profits by turning over to a developing group large areas assembled by it in order to demolish slums, the authority may apply funds so realized toward the purchase of outlying lands for the construction of low-rental housing.

### VALUE OF SCHOOL DISTRICT REQUIREMENT

Mr. Holden has pointed out that in New York the Housing Authority has been granted the right of condemnation for both the purposes of low-cost housing and of slum clearance. The present volume is devoted to an effort to secure the power of eminent domain for the purpose of promoting, and making possible, commercial developments of certain seldom attained characteristics, on the sanction of public benefits which they would bestow. The neighborhood unit formula (presented in Chapter III) is an attempt to define the characteristics that would produce the maximum benefits. The question is, does the school district requirement contribute enough benefit to cause it to be regarded as a necessary part of the unit formula? Its virtues can be briefly enumerated.

(a) As a basis for size it is objective and at the same time elastic enough to meet the various density conditions.

(b) Its use insures that children going to and from school will enjoy the protection that is afforded by a special street plan, designed to promote the safety of pedestrians.

(c) A school district is practically the largest area that can be

## UNITS SMALLER THAN SCHOOL DISTRICT SIZE

treated as a more or less closed residential cell and within which space for recreational use can be gained from economies in the internal street layout.

(d) There is a gain in efficiency when neighborhood playgrounds are correlated to school recreational space.

(e) One of the most powerful interests shared by the great mass of American families is education of the children. In a neighborhood community, whose focal point is the public school, that interest enjoys full expression and becomes the nucleus around which many other associational activities are formed. In such an environment, the face-to-face community, whose deep sociological importance was discussed in Chapter IX, is certain to arise.

(f) Last but not least in importance, if the school district is not involved in neighborhood planning and building it will probably not become an objective of city planning, and the wastes incidental to the present methods employed in locating schools, referred to on page 171, will not be stopped.

If the school district requirement is left out of the legal formula which is to qualify it as a public use, two results may follow: (1) the formula may be so weakened that it will not win the eminent domain power, or (2) government implementation may be given to a vast number of projects in which the benefits enumerated above will not be conferred upon the public. These two possibilities would appear to be sufficiently important to justify the retention of the school district requirement.

Does that mean, however, that the gains possible through the comprehensive development of three-block, two-block, and other smaller-than-school-district plots are not important and do not merit a place in city building techniques? It would be foolish to take such a stand. Mr. Holden has shown in numerous studies that the mere reorganization of properties in a single run-down block and the placing of them under a single competent management can increase its economic return. Rebuilding of such a block would be bound to produce even greater benefits for both owners and renters.

To the writer, the solution of this dilemma lies in the order in which the two rehabilitation methods are applied to a given area. If, for example, the smaller project method were applied mis-

## HOUSING FOR THE MACHINE AGE

cellaneously in a section like the lower East Side of New York, it is plain that each such development would greatly improve the plot upon which it was built. But those small projects might be so spread around as to make it practically impossible to carry out any developments of the school district size in that section. To appreciate the loss that would be sustained through following such a course we must reflect upon the advantages that would be gained if all feasible school district projects were first carried out in the section and the smaller developments were used for filling in the interstitial spaces.

From the standpoint of public policy, it is plain that the larger scheme with its own school and shops, and reduced exposure to traffic dangers, does most for the family. It permits also a higher utilization of the gain that comes from combining open spaces and the attainment of a more imposing residential character. From a purely construction viewpoint, the neighborhood unit project constitutes an operation of larger scale than we should be likely to have in any scheme that was not based upon the public school service district.

While we are rebuilding our cities, can we afford to aim at any standards lower than those which are physically possible?

## D. THE NEIGHBORHOOD IMPROVEMENT ACT

THE following draft of a "state statute for the protection and improvement of neighborhoods through action of the property owners" has been formulated and is being promoted by the National Association of Real Estate Boards.<sup>1</sup> The foreword is signed by the Association's executive vice president, Herbert U. Nelson. The Act is used as the tailpiece of the present study because it sounds and accents the note that was struck in the opening sentence of Chapter I—the significance of the neighborhood.

It is the man who sells houses who comes to know, better than anyone else, what invests them with value. From long experience he understands that the one factor that influences every customer is the indefinable thing we call "residential quality," an attribute not mainly of the house but of its neighborhood.

Appreciation of the home environment runs back probably to the time when families first began to occupy separate dwellings. But public consciousness of the fact that man can do something about the surroundings of his house appeared—at least in America—only yesterday. Zoning, as a means of preventing the deterioration of quality, was instituted by men now living, while "neighborhood planning" is still a new term.

It is one thing to prevent factories from being erected next door to dwellings and another thing to plan houses and service institutions according to a convenient and attractive pattern; but to introduce order and amenity into an established, miscellaneous aggregate of structures is quite something else. That is the hard task that realtors have set for themselves in this proposed statute. It is an objective as worthy as it is difficult to attain. Those who work at it are bound to feel anew the importance of arranging the elements of a new neighborhood properly before these are set in concrete.

<sup>1</sup> The Neighborhood Improvement Act—A Suggested State Statute for the Protection and Improvement of Neighborhoods through Action of Property Owners. National Association of Real Estate Boards, 22 West Monroe St., Chicago, Illinois, December, 1937.



## HOUSING FOR THE MACHINE AGE

### THE NEIGHBORHOOD IMPROVEMENT ACT

#### FOREWORD

The important elements of family life and security of home ownership rest, in no small degree, upon the character of a neighborhood. Maintenance of neighborhood character in turn depends upon some control of land use. When stores, filling stations, billboards, and garages are permitted to come into a neighborhood of homes, unfavorable conditions arise which tend to discourage the home owner, and he leaves as soon as he can. The result is blight. It is this blight which is the prevalent disease of our American cities today. It attacks the city at the core and moves outward progressively. It threatens billions of invested wealth. It promotes decentralization, which spreads public services over increasingly vast areas at staggering costs.

The proposal for a Neighborhood Improvement Act seeks to attack this problem of blight at the most critical point. A neighborhood is an entity hard to define but easily understood. It is not too large to be beyond comprehension of the common man. Everyone is interested in his own neighborhood. The neighborhood must, therefore, be the new unit upon which effective city planning is built. Vast city plans, general in character, do not command the effective support of the average citizen.

The planning of neighborhoods is a corollary to comprehensive city planning. City planning must seek to co-ordinate neighborhoods, as well as to determine the broad framework of the city. The proposal to plan and develop neighborhoods is not new. Every sound land developer has done these things. Because he was able to start with new land, he was able to impose the necessary controls and lay out the necessary plans through private contracts. The Neighborhood Improvement Act merely proposes to give old neighborhoods powers similar to those which new subdivisions or small suburban village governments now have.

Mr. Harland Bartholomew of St. Louis, City Planning Consultant to the National Association of Real Estate Boards, has assisted in the formulation of this Neighborhood Improvement Act. The draftsman was Mr. Frank Watson of Purdue University. Many other persons eminent in the field of city planning and in the field of governmental activity have contributed.

The Neighborhood Improvement Act is submitted as an enabling statute which would permit the experiment of neighborhood planning and improvement to begin.

## NEIGHBORHOOD IMPROVEMENT ACT

### THE ACT

SECTION 1. *Title.* This Act may hereafter be referred to as "The Neighborhood Improvement Act."

SECTION 2. *Definitions.* As used in this Act: (a) the term "city" shall mean any duly incorporated city, town or village; (b) the term "planning commission" shall refer to any officially constituted board, body, commission or committee normally charged with the duty of preparing master plans for orderly city development; (c) the term "governing body of the city" shall mean the city council, board of aldermen, city trustees, or other body having the power to pass ordinances and resolutions and to otherwise legislate concerning city affairs; (d) the term "privately owned land" shall mean all land not held by governmental bodies for public purposes.

SECTION 3. *Method of Determining Neighborhood Areas.* The planning commission of any city may, for the purpose of making the provisions of this Act available, prepare a plan of the city dividing all or part of the city into neighborhood areas in conformity with the official city plan. A report showing such division shall be presented upon request to the governing body of the city and when approved by them shall constitute the definition and boundaries of neighborhood areas for the purposes of this Act, provided, however, that no plan of neighborhood areas shall be adopted, nor shall any individual neighborhood area be defined as hereafter provided until after a public hearing in relation thereto, at which parties in interest and citizens shall have an opportunity to be heard. At least fifteen (15) days' notice of the time and place of such hearing shall be published in any official paper, or a paper of general circulation, in such municipality.

In a city where no planning commission exists the governing body of a city may adopt a plan of neighborhood areas after public notice and hearing as provided in this section. Should the governing body of any city fail to request the planning commission to prepare a plan of neighborhood areas, or should any planning commission fail to prepare and present such a plan to the governing body of the city within sixty days after having been requested to do so in writing by the governing body or by five (5) per cent or more of the owners of real property within the city limits, or should the governing body of the city fail to accept such a plan within ninety (90) days after it is presented to them, then and thereafter the owners of twenty-five (25) per cent of the privately owned land in any area designated by them, may in writing signed by each of them and presented to the governing body of the city, bound and define such area as a neighborhood area within the meaning of this Act.

SECTION 4. *Creation of Neighborhood Area Development Plan.* The

## HOUSING FOR THE MACHINE AGE

owners of sixty (60) per cent of the area of privately owned land in any duly constituted neighborhood area may, in writing, present to the governing body of the city a plan for the development and restriction of such neighborhood area. Such a plan may, among other things, provide for:

- (a) Zoning or rezoning.
- (b) Improvement and alteration of major and minor streets.
- (c) Parks, playgrounds and public recreational facilities.
- (d) Neighborhood planting and landscaping.
- (e) Location of all public utilities.
- (f) Building restrictions.
- (g) Progressive elimination of non-conforming uses.

In cities having a planning commission, the governing body of the city shall refer such plan for the development and restriction of the neighborhood to the planning commission which must make a report thereon to the governing body of the city within ninety days after receiving such plan. Failure to make such a report within that time shall be deemed to constitute approval of the plan. The governing body of the city may then accept or reject such plan after giving consideration to the report of the planning commission, and after public hearing and published notice as provided in Section 3 for the plan of neighborhood areas. When accepted, the plan shall constitute the official plan of the neighborhood area involved.

SECTION 5. *Publication of the Plan.* Any duly adopted neighborhood plan shall then be published by the governing body of the city by mailing a copy of such plan to each property owner residing within the affected neighborhood area, and by posting a copy of such plan in several reasonably distributed public places within such neighborhood area.

Thirty days after such publication, such plan shall become effective and shall have the full force and effect of an ordinance or resolution duly enacted by the governing body of the city. It may thereafter be amended and exceptions made to its operation by the same process by which it was adopted originally.

SECTION 6. *Appeal.* Any property owner in a neighborhood area for which a neighborhood plan has been adopted may, within one year after the publication of such plan, petition a court having jurisdiction over the property involved, to stay the execution or effect of the plan as to him. Notice of filing of such petition shall be duly served on the governing body of the city and notice thereof placed in a newspaper of common circulation in the neighborhood area involved. In the action on such petition, the official representative of the city, and any property owner in the neighborhood area involved shall be entitled to be heard. Should the court decide,

## NEIGHBORHOOD IMPROVEMENT ACT

after hearing, that the plan is unreasonable as to the petitioning property owner, it may issue an order restraining the operation or effect of the plan as to the petitioning property owner. The force and effect of the plan shall not otherwise be affected unless the court shall affirmatively find that so restrained, the general effect and force of the plan is so altered as to make it an undue variation of the original plan no longer able reasonably to accomplish the result sought in the original plan.

**SECTION 7. *Execution of the Plan.*** Restrictions and regulations as to the use of the property within the neighborhood area to which any plan applies set forth in the plan shall apply and be enforced within such area in the same manner as if contained in city ordinances.

To the extent that the plan calls for construction of improvements or condemnation of private property, the governing body of the city shall set its duly constituted machinery in motion to accomplish such improvements or condemnation in the same manner as if the city were engaging in construction of improvements or condemnation of property for any proper municipal purpose. Benefits shall be similarly assessed and collected.

**SECTION 8. *Organization of Neighborhood Associations.*** In order to provide an organization by which property owners in any neighborhood area may create and amend plans for neighborhood improvement and otherwise avail themselves of the rights granted in this Act, such property owners may organize themselves into a neighborhood improvement association. Such neighborhood associations shall be organized by filing with the secretary or clerk of the governing body of the city, a set of articles of organization duly signed by the owners of at least twenty-five (25) per cent of the privately owned land within the neighborhood area for which the neighborhood association is being organized. Such articles of organization shall state:

- (a) The name of the neighborhood improvement association.
- (b) The boundaries of the neighborhood area involved.
- (c) The names of the original officers and trustees of said association.

The officers of such association shall consist of a board of trustees of five (5) owners of real property within the neighborhood area involved and a secretary and a treasurer who shall also be owners of real property within the neighborhood area involved. Each officer and trustee shall serve for a term of one year and until his successor has been elected and qualifies. Failure of any officer or trustee to continue to own real property within the neighborhood area involved shall ipso facto disqualify said person to hold office.

Vacancies in any office may be filled at any time by special election.

## HOUSING FOR THE MACHINE AGE

Meetings shall be held at least once a year and on such other occasions as the association may agree. At all meetings of the association, each member shall be entitled to a number of votes bearing a proportion to the total number of votes set for all members which the area of land owned by him bears to the total area of the land owned by all of the members of the association.

The association may assess its members to cover the expenses of carrying on the business of the association.

The trustees of the association may, for the purposes of this Act, sign papers for and on behalf of all of the members of the association, which signatures, when accompanied by a certified copy of the minutes of the meeting of the association authorizing such signature, shall have the same force and effect as if the papers signed by the trustees were signed by each of the members of the association separately and individually.

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